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Tropical Life:

A Monthly Journal devoted to the Interests of those living, trading, holding property, or otherwise interested in Tropical and Sub-Tropical Countries.

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The Coming Rubber and Tropical Exhibition and Congress.

MR. J. B. RORER, who was formerly attached to the Department of Agriculture, Trinidad, now writes us from Ecuador that he would very much like to come to London in June and take part in the cacao section of the Congress. One can but hope he will be able to do this; so many will be glad to see him and he to see so many. What a paper he could give us on the cocoa industry in Ecuador about which we know so little.

It is also to be hoped that as we shall have Mr. H. C. Sampson on this side over the middle of the year, he will give us a paper dealing with the coconut palm, what it needs and how it grows. As Deputy Director of Agriculture in Southern India, where the area under his charge covers the coconut districts of Malabar and Cochin, no one is better able to discuss this important crop and its future. We trust he can see his way to do so. His investigations in connection with the root-system of the palm would alone be worth going "miles" to hear about.

Good Luck to the West Indies.

CONGRATULATIONS are due to Mr. A. E. Aspinall, C.M.G., the Secretary of the West India Committee, and those working with him on the response made to their appeal to build up an Endowment Fund. To appeal for funds for any purpose in these days requires much daring and still more tact; but then, of course, Mr. Aspinall has both, and so at present the amount collected works out around £10 per head of the subscribers. As, however, less than half the members have replied, if the remainder only average £5 a head the results will be extremely good, and the benefits that will reflect on those who have helped to place the work of the Committee on an assured and permanent basis will last as long as the islands themselves. Now with the Tropical Agricultural College about to be established in Trinidad, thereby creating a precedent, the Committee is likely to assume an educational importance equal to its present influence in British colonial economic politics and commerce.

With the slump in cacao, such a college would be especially timely as, in collaboration with the Committee in London, it could work to eliminate low-grade cacaos which no one wants. Perhaps it would be as well to call attention, on this account, to what is said further on *re* restriction of output (see pp. 14-15), and the difficulty to sell unfermented cacao just now against Accras.

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Colombian Pita Fibre.—Part II.

(Continued from December issue, p. 183.)

"The fibre is of excellent quality, and there would be doubtless no difficulty in finding a ready market for it in this country at the present time at a price equal to that of henequen of Yucatan, which has been quoted at 16½ cents per lb. in New York. It seems



FIG. 2.—The Inflorescence of the Pita Plant.

(The large reflexed bracts are rose-coloured.)

very doubtful whether American manufacturers would pay for the fibre in quantity as much as the retail prices for small lots sold in Colombia. If it can be pro-

duced in quantity, however, there would be a ready market for it in this country in lots of many tons."

Further samples have been submitted to merchants and manufacturers, and offers to take the Pita fibre in quantities of 1,000 tons have been received. A large consumer, recognizing the excellent qualities of the fibre, has offered to take the whole output of the "pitales" of Chiriguaná for the period of three years, giving the current market price for sisal for it. An important fibre broker judged it "the finest fibre possible."

There is therefore no doubt as to the commercial value of the Pita fibre, and that there exists a ready market for it at prices equal to the best sisal or henequen. When the fibre is better known there is no doubt that it will command better prices than these fibres, because of its fineness, strength and durability. The great length of this fibre will be observed from the photograph which forms fig. 6 in the December issue.

A few years ago this fibre fetched at Chiriguaná 15 to 20 cents per lb., and at the Magdalena river ports 25 to 30 cents per lb.; at these ports later, however, it fetched from 40 to 50 cents per lb. This is due largely to the fact that owners of Pita lands forbid the collection of the fibre, owing to the destruction and waste incurred, as they are awaiting machinery for its extraction on a commercial scale. It is also due, to some extent, to a slight increase in local wages.

STOCKING OF THE "PITALES."

A surveyor, who has made a careful survey of the Chiriguaná forests, estimates that the "pitales" contain from 5,000 to 8,000 plants per acre, and even more in the richer parts. Sisal or henequen is planted in East Africa at from 900 to 1,000 plants per acre, in certain other countries as many as 2,000 plants are put to the acre; it will therefore be seen that the natural stocking of these "pitales" is very much



FIG. 3.—A view in the Pitales, showing the natural growth of the Pita Plant.



FIG. 4.—The Pita Plant used as a fence in the open.



FIG. 5.—The type of forest in which the Pita Plant grows at Chiriguaná. In the foreground natural pastures famed for breeding cattle.

higher than the usual stocking per acre of sisal plantations.

PROBABLE PRODUCTION OF FIBRE.

It is estimated that the Pita plant will afford 30 leaves per year in two cuttings (in Mexico the hene-

quen plant yields 25 leaves per plant per annum). If we take, to be conservative, the minimum stocking above referred to, viz., 5,000 plants per acre, there would be an annual production of 150,000 leaves per acre. Now 100 leaves weigh from 66 to 70 lb., according to two independent experiments, so taking the

mean of the two computations, viz., 68 lb., the 150,000 leaves should weigh 102,000 lb.

It has been found that, by the native hand method of extraction, every 100 leaves or, say, 68 lb., yields 2 lb. of dry fibre. It is calculated, however, that there is a loss approximating to nearly 40 per cent. of the actual fibre content of the leaf, which would therefore be about 5 per cent. Allowing, however, for the recovery of only 3 per cent. by mechanical extraction, it will be seen that the return per acre should be 3,060 lb. or, say, about $1\frac{1}{4}$ tons of dry fibre.

THE FUTURE OF PITA.

It will be seen that, even on conservative estimates, these Pita fields are capable of giving a yield comparing favourably with that of the best sisal plantations. The advantages of exploiting natural "pitales," as compared with plantations, are obvious. In the former case, all that is necessary to commence production is to instal machinery. There is no long and tedious wait while land is being cleared and planted and weeded, as in the case of sisal planting, which involves a wait of about three years before the plants come into bearing, and then replanting at every few years' interval. There is no locking up of capital for a long period, which is to-day such an anxious matter in the case of plantation enterprises, owing to the uncertainty of markets and instability of exchanges. On the contrary, there should be immediate production and immediate returns once suitable machinery has been installed.

The difficulty hitherto experienced has been the fact that no suitable machine has so far materialized which successfully extracts the fibre from the leaf of the Pita plant. Since the writer discovered the Pita fields of Chiriguaná in January, 1918, very considerable strides have, however, been effected in this direction. One machine has been devised in New York at the suggestion of the writer, and is at present being patented in the United States; it is hoped that this machine will solve all the difficulties which have confronted the commercial utilization of the Pita fibre to this day. Another, and distinct type of machine, is at present being tried out in the Pita fields of Central America, and the adaptation of existing fibre machines in this country and the Colonies is in view which promise to give more or less satisfactory results.

Apart from mechanical extraction, the possibility of extracting this fibre by "retting," either by microbiological action or by chemical means, or by a combination of the two, is not being lost sight of. It is therefore probable that before long sisal and other similar hard fibres will have in Pita a close competitor.

The exploitation of these natural Pita fields would therefore appear to deserve the most serious consideration of financial people interested in the development of this type of fibre and in the all-important question of the future supply of a valuable commodity.*

The ex-Warrior in East Africa.

OUR East African subscriber to whom we are indebted for the article on that Colony which appeared in the September issue (p. 138) writes again, this time from Lumbwa, under date November 1st: "I received your inquiry regarding the suitability of this area for Jesuits' bark, and if a profit is possible it shall have attention, but Nyasaland is a far cry from here—farther by road or land or sea than England. I have, however, never heard of quinine being cultivated up here and, I believe, elsewhere, privately owned areas do not show much, if any profit.

"You will note that I have left the Government farm at Kabete, and am now managing this estate until I move on and take charge of my own. Life is pleasant here, too much so for those anxious to live 'soft.' Here we grow coffee and flax, but mostly coffee—we expect to get forty tons of coffee this season. If you work hard you can live well; there are horses to ride and plenty of shooting, as well as plenty of work. The climate is the best I have experienced. If you want better, do not waste your time stopping on this planet. Only make certain before flitting that where you go, or hope to go, is better, or even as good. We are about 6,000 ft. up, so it is not too hot, but the scenery—very hilly—is fine. From our hill near my residence I can see Lake Victoria Nyanza, on a clear day, although it is sixty miles away or so.

"I have inspected many crops growing around—cotton, sugar, coffee, tea, flax, bananas, oranges, maize, &c. At Londiani, about twenty miles east of here and 7,000 ft. up, wheat and barley do as well as maize. I wonder how all these will do on my own piece some ninety miles due north from here. They tell me that the land up there is worth now at least 40s. an acre, and there is no doubt that the country is full of opportunities—for those on the look-out to grab and hold them as they pass. It is only those, as a rule, who imagine that their opportunities will come and ask to be pocketed that fail to make good; but then such folks exist everywhere. We must have suitable labour-saving machinery, however, to overcome the certainty of expansion outstripping the labour supply. It is common knowledge in Nairobi that many wealthy people are shortly coming out here to buy estates and settle. When they do, I cannot believe that the land will remain even at its present enhanced value. I intend looking round a bit—'take a little "mooch" round,' as one man put it, but he went over double the distance I am thinking of. I am going by ox-wagon towards Mount Elgon, away to the north. By the time I have finished I reckon to cover some 300 miles, and take, probably, twenty-five days.

"The possibilities of the now-called Kenya Colony are splendid. Take coffee, for instance. Coffee land near the railway costs £15 an acre, and £25 to break up and bring your coffee into bearing in four and a half years. Some would spend more, some might spend less. Finish your job, however, and take stock; the profit is good, for five-year-old coffee is worth £100 per acre, and will give an average crop of half a ton per annum, worth now about £50. The wild coffee around here interests me. It lacks caffeine, and is,

* Those interested in this fibre and its possibilities may be able to obtain reprints of this article complete as soon as Mr. Dawe returns from the Gambria in a month's or so time.

on that account, supposed to be good for people with weak hearts. I wonder no American booster has thought of this and pushed its sale in America instead of their awful substitutes, roasted maize or date-stones, or some such things. I always wonder where those date-stones come from. How are they removed from their natural habitat? Banish the thought. All the same, I prefer to grow and consume my own berries and know exactly where they have been."

"THANKS for your note," writes Dr. H. H. Hunter (the author with Mr. E. Brown, F.L.S., of "Planting in Uganda"). "As you know, I am interested in Uganda, which many people mix up with B.E.A. or Kenya Colony. Sisal is grown in East Africa close to Nairobi. It was grown extensively in German East Africa before the war, but since 1914 the estates have been largely neglected. Sisal grows quite well in Uganda, but the cost of transport is prohibitive. Cotton, rubber and coffee are being grown extensively (in Uganda), the staple export being cotton, of which the area under cultivation is extending. It is a native's crop as compared with rubber and coffee, grown by Europeans. We are now passing through a stage of depression largely due to the fixing of the rupee at two shillings (as in Malaya, where the dollar is at 2s. 4d.—Ed., T.L.), which now automatically increases costs by 50 per cent. We are also hard hit by the collapse of the produce market, but I trust that is only temporary; the exchange question is the great trouble."

The Cult of the Coconut.

COPRA AND COPRA MANUFACTURE.*—PART I.

COPRA is the dried meat of the coconut, and at present constitutes the principal and the most important article of export derived from the coconut palm. The meat is dried in the sun or in artificial driers, among which may be classed the so-called "tapahan" dryers, in which most of the Philippine copra is prepared.

More recently the Bureau of Science, Manila, has experimented with a method for the preparation of copra by treatment of sulphur dioxide gas, and allowing the meat to dry without addition of artificial heat. (See "Copra and Coconut Oil" by H. C. Brill, N. O. Harrison, and H. S. Yates, *Journ. Sci.*, 1917.)

In order to successfully resist deterioration from moulds and bacteria and so produce a first-grade oil and secure the highest price obtainable in the market, copra should be made only of fully matured or "cured" nuts; it should be thoroughly dried so as to make a clean product, containing not more than 6 per cent. of water. Ordinary sun-dried copra con-

tains about 9 per cent. and "tapahan," or smoke-dried copra, frequently exceeds 18 to 20 per cent. of moisture, a condition that, particularly with long storage in a moist, damp atmosphere, is all too favourable for the growth of moulds, the foremost enemy of improperly prepared and improperly cared for copra, and the formation of fatty acids at the expense of the oil content.

Knowing what constitutes good copra, a glance at the following table is a sufficient exhibit showing the reasons for the inferior price received for Philippine copra. This table is an excerpt from an unpublished manuscript on "Copra and Coconut Oil" by Messrs. H. C. Brill, H. O. Parker, and H. S. Yates, Bureau of Science, Manila:

MOISTURE CONTENT OF COMMERCIAL COPRA IN THE PHILIPPINES.

Locality		Maximum Per cent.	Water	
				Minimum Per cent.
San Pablo, Laguna	...	29.1	...	18.8
Lucena, Tayabas	...	23.1	...	14.5
Atimonan, Tayabas	...	24.7	...	15.5
Legazpi, Albay...	...	22.2	...	17.6
Tacloban, Leyte	...	20.7	...	14.4

Where climatic conditions permit, sun drying may be resorted to; in other regions artificial dryers must be used.

After the nuts are properly cured they are ready for husking, the first operation in copra making.

Many attempts have been made to invent a mechanical husker, and several power-driven huskers have been devised and placed upon the market. Whatever the reason, such as have been introduced into the Philippines do not seem to have proved satisfactory and none are now in operation, so far as the author is aware. All the husking in the Philippines is done by hand. Considering that an experienced husker can handle 1,000 or more nuts per day, at the present price of labour it seems unlikely that power huskers will supersede manual labour for this process for some time to come.

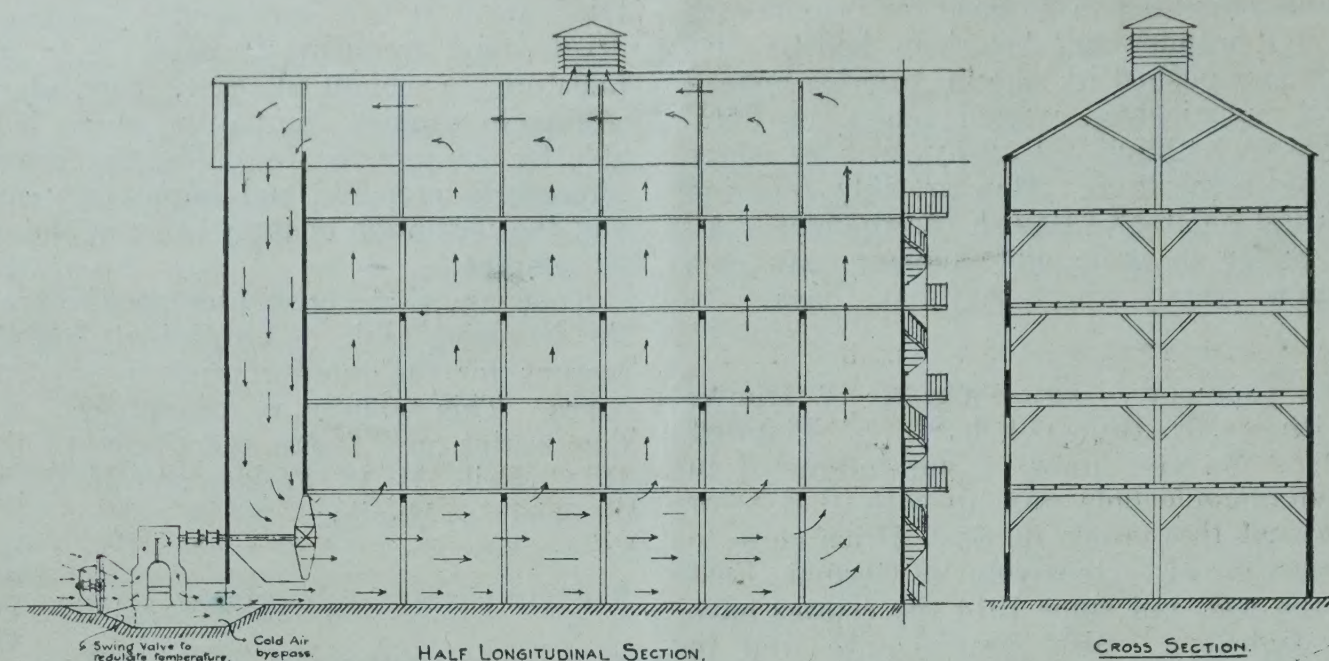
The husking by hand is a very simple operation and consists of the use of an ordinary sharp plow-point pointing upward, set into a heavy block of wood, and so high that the point is a little above the knees of the husker. Plate IX included in the *P.A.R.* referred to in the footnote at the start illustrates the operation better than could any written description, but, unfortunately, we cannot reproduce the photograph here.

After husking, the nuts are cut in halves by a sharp blow with a bolo, which, where the copra is sun-dried, are placed face up in the sun to dry for a short time until the meat separates from the shell. After this has been attended to, the drying of the meat is completed in the sun and the copra is then ready for the market.

A few artificial copra dryers are now being operated, but the amount of copra thus produced is still insignificant and for all practical purposes all the copra in the Philippines is still sun-dried or smoke-dried.* In

* Reprinted from the *Philippine Agricultural Review*, in which Mr. P. J. Wester discusses at length in a special article, "The Coconut—its Culture and Uses." We reprint in full this portion of Mr. Wester's excellent article, as we are anxious to keep the question of mechanical *v.* natural drying to the fore, and because we have much respect for what the Philippines have done and are doing in this way.

* It must be remembered that these notes were published early in 1918, and collected, probably, during the year before that.



By Courtesy of the Publishers of "Coconuts—the Consols of the East."

Suggested Elevation of a Large Tropical Drying House to dry "by the acre," under cover, showing the arrangement of the floors and staircase.

the sun-drying the halved nuts are first spread on the ground; as the drying proceeds the meat is collected and placed on palm-leaf mats. The smoke or "tapan" dried copra is produced by placing the meat on bamboo screens over a crude furnace from which the heat and smoke rises and passes through the bamboo screen and meat.

(To be continued.)

Rubber and Cotton Notes.

A FIFTY PER CENT. REDUCTION.

JUDGING from all one hears, it seems likely that the restriction in the rubber output will be put at 50 per cent. of the possible. There is a considerable need for such a plan, and any estate, large or small, not falling in with the proposal will be more than foolish. No doubt some will feel the pinch more than others; so they did in the Great War; but in spite of that all non-slackers joined in. The same spirit must prevail in rubber circles. The only point in debate being as to how the restriction can best be made. Shall it be by going "half-time" every day, or would it be better to have no tapping during each alternate day or week?

IS "SAKEL" COTTON BEING OVER-PRODUCED?

Referring to our leading article in November on the production of long-staple cottons in India, in which we based our remarks on what Egypt is doing, we certainly recommend all interested in this alluring undertaking (breeding new strains and varieties of cotton) to study what Mr. H. Martin-Leake, M.A., F.L.S., Director of Agriculture, United Provinces, India, has to say on the subject in the *Agricultural Journal of India* for October (vol. xv, Part v), on "The Egyptian Cotton Problem." Following on what Mr. Ballou, of Barbados (as compared with India) has to tell us in the *Agricultural Journal of Egypt* (see *TROPICAL LIFE*, November, p. 170), this further report

by Mr. Martin-Leake is timely. Sakel, as we have already pointed out, is the popular name for *Sakellarides*, and to our surprise Mr. Martin-Leake says: "There is no doubt in my mind that the production of sakel is far in excess of the demand." Can this be possible in face of all one has heard of the certain shortage later on in America of cotton-fabric for rubber tyres (which, we understand, must be made from long-staple cotton, sakel in preference, until a better strain has been produced). Of course, just now with the slump in everything and sakel cotton showing as big or bigger a drop even than sugar, one may wish to go slow. This, however, was not the case when Mr. Martin-Leake was writing his report in 1919, so one cannot help wondering what he would say now when the over-dear prices charged for bad quality manufactured cotton has killed the demand, and whilst those who caused the slump have made large profits, the planters in Egypt, India, America, &c., are faced with serious trouble ahead. How many million bales are being carried over we do not care to suggest, but we do feel that had the public all along been given pre-war quality cotton goods, and if profits of 533 per cent. had not been allowed, the cotton-growing industry would not be in its present plight, for the demand would have consumed this surplus and so prevented the slump. It is the same with motors and tyres. Had fairer prices been asked the demand for tyres would have been larger and the demand for sakel or other long-staple cotton maintained.

The demand for sakel cotton was stimulated by the fashion and demand for cotton-voile, a largely artificial demand that cannot be relied on to last; but, points out Mr. Martin-Leake, when sakel cloth came to be used for aeroplanes and motor tyres, here was no artificial demand for which this cotton from Egypt was found to satisfy better than others. This, however, does not remove our claim that sakel may be the best of what we have, but does not altogether satisfy those using it. There is still a demand for a staple stronger and tougher than sakel is to-day. America, especially Arizona, may produce it, so may Mesopotamia. Let them all try, and then Egypt.

using these new strains, can try like Lipton "to lift the Cup" again for their own cotton by further improving that which has been already improved. By that time the demand for tyres will be quite good enough to make things hum even before they do so on a motor axle. Mr. Martin-Leake's notes have yet to be concluded, but we hope all makers of tyre fabrics and growers of cotton will study what he has to tell us.

MR. M. T. DAWE IN "THE RUBBER AGE."

We were glad to read the tribute which that go-ahead journal, the *Rubber Age*, pays to Mr. M. T. Dawe in its December issue. There is but little doubt who wrote it. Only a "fellow" knock-about like Mr. Dawe himself could have done so. All the same that photo was not the first that saw daylight on this side of the water, for M.T.D. was "Our Friend" long ago, just after his ascent of Rowenzori and his interview with the Duke of the Abruzzi before that prince also made a trial ascent.

We liked the first paragraph of this "Elastic Letter"; the writer of it will agree, we are sure, that it is applicable to many. Many thanks and the best of luck to them all. "Your work," it runs, "as a specialist in tropical agriculture, is its own reward. It attracts men with sterling qualities, which protects them against the risk of being embittered by the widespread indifference that makes for lack of recognition of their services, whilst the masses the wide world over are so absolutely dependent on the products of the tropics for so many comforts and necessities of life."

PRICES AND MOVEMENTS.

The market has had its ups and downs. On (Saturday) January 8th one talked quite cheerfully of a 50 per cent. rise, say from 10d. to 1s. 4d., but the latter price was only "touched" and then there was a falling away again. All the same, we feel sure that once the policy of restriction gets into working order, providing of course it is widespread and loyally adhered, the more reasonable output in comparison with the demand should send up values to a sufficient height to make it worth the producer's while to keep to his bargain. The saving in wages, freight, &c., should be in proportion to the fall in output, and if the demand for the smaller quantity sent prices up to 2s. 6d. per lb.—well, the consumer would not feel it, and no one else matters. Up to now, someone between the producers and the consumers has been making too much money; it is hoped, therefore, that the restricted output will continue until rubber is at least up to 2s. 6d. per lb., as if this were done no one would suffer, whilst the industry (of raw rubber production) would be assured and the trees benefited.

Coming now to prices, according to Messrs. Lloyd, Matheson and Carritt, these compared as under on January 13th:—

Spot quotations—		1921 Jan. 13th.		1921 6th.		1920 15th.	
		s.	d.	s.	d.	s.	d.
Smoked sheet (F.A.Q.)	...	1	0½	...	9½	...	2 8½
Crêpe (standard quality)	...	1	2½	...	10½	...	2 8½
Parà	...	1	0¾	...	1 1	...	2 7½
Forward positions—		Smoked Sheet		Crepe			
		s.	d.	s.	d.		
1921, January	...	1	0½	...	1 2½		
„ January—March	...	1	0¾	...	1 2½		
„ April—June	...	1	2	...	1 3½		
„ July—December	...	1	4	...	1 5½		

Stocks—		Tons		Tons	
Plantation,	} .. Jan. 8th, 1921, 51,706	... Jan. 1st, 1920, 13,280			
London					
Parà, Liver-	} ... „ 1st, „ 465	... „ „ 184			
pool					
Total 52,171		Total 13,464			

THE MARKET FOR BALATA.

Following other markets somewhat closely has caused us to neglect quoting Balata prices, for which we apologise.

This market is at the moment quiet, but prices are magnificent compared with rubber. Venezuela block varies from 3s. 8½d. to 3s. 11d. according to delivery, the latter being the spot price. West Indian sheet is valued around 4s. 4d. spot, against 2s. 11d. for good quality Panama block or 3s. for Tumaco.

A NEW RUBBER BOOK.

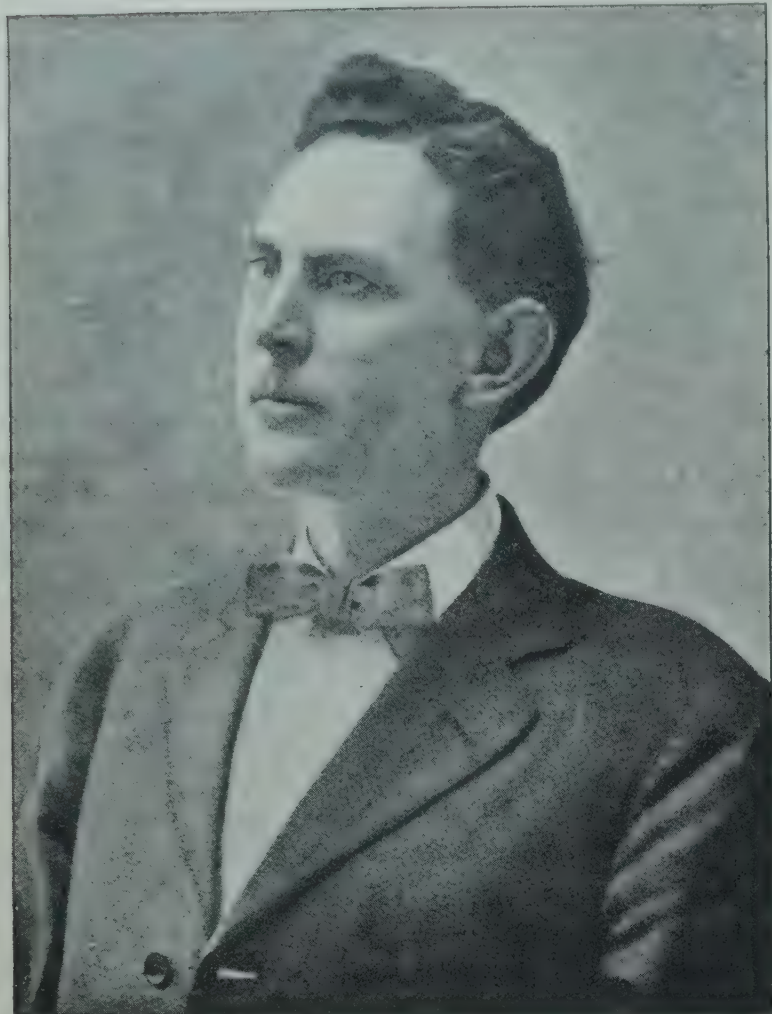
THE *India Rubber World* calls attention to the following. As we have had inquiries for this book, others may like to receive particulars, which run as follows:—

"Plantation Rubber and the Testing of Rubber," by G. Stafford Whitby, Assistant Professor, Department of Chemistry, McGill University, Montreal, Canada. Cloth. Illustrated. xvi + 559 pages.

The author, we are told, has earned the gratitude of every student of the technology of rubber by the very satisfactory way in which he has made available, in one volume, these results recorded from widely scattered sources. The book will be valued as an authority in every rubber research and works laboratory—certainly, we imagine, on every estate.

Our New York contemporary also comments on Mr. Ward-Jackson's book, which we "noticed" last month, p. 172, and concludes by saying that this is the only book of its kind and fills a long-felt want.

WHATEVER regret may have been felt by conservative Drury-Lane-ites when they heard that their beloved and time-honoured pantomime was to be accorded the hospitality of "another house," a visit to Covent Garden to see the latest edition of Cinderella as presented by Messrs. Arthur Collins and Alfred Butt (the rival twin brethren in the theatrical world to G. G. and Laurillard), leaves but little to be desired. We were pleased to see Whimsical Walker again and, as ever before, you wonder what becomes of him for the rest of the year. We met Miss Kathlyn Hilliard for the first time, and certainly mean to be in a prominent place when she is in her next piece; and then there is Miss Lily Long—a great favourite of ours—who seems to try and amuse with less effort than anyone. Yet when she is off the stage you wish she were on, and when she is on you do wish she would not go off. Those who remember Brunin some thirty years ago, when Sampson and Sandow first came into notoriety, may think as we do, what a splendid pair he and Miss Long would have made together. Both so tall, and so naturally amusing in many ways which never tired you to watch, but are not easy to describe, and in the present pantomime Miss Lane certainly proved a big "asset."



"Tropical Life" Friend.—No. 187.

DR. J. F. ILLINGWORTH.

Government Entomologist, Queensland.

"OUR FRIEND" this month made good off his own bat, as ill-health when a boy curtailed his schooling, and so he arrived at the age of 22 or so feeling very much "out of it" in all ways, but the iron had entered into his soul, and so even whilst still quite a kiddie Fate in the shape of Nature gave him such a "flip-up" that he has been fighting all insects, no doubt including grasshoppers, ever since. Born at Lanark, Illinois, in May, 1870, "my family moved West in 1874," he once wrote us, "in time for me to experience the terrible grasshopper year in Kansas." No wonder after this he decided to become an entomologist.

As a boy, and until he was twenty or more, Dr. Illingworth stuck to orchard work in California, and then seizing his laggard Fate by the horns because she moved too slowly, he put himself, even at that age, to finish his education, and finally entered Pomona College, California, while earning his keep and fees as best he could. Being good at his work, the financial strain eased off, and he graduated without losing a year, gaining his B.S. in 1900. Meanwhile he had specialized in science, and was particularly drawn under the influence of Professor A. J. Cook, one of the chief pioneers in economic entomology in America.

During his senior year "Our Friend" was granted permission to attend the California State University at Berkeley, in order to follow a course in advanced science which was not, at any rate in those days, included in the curriculum at Pomona. Following graduation, he told us, "I had a most profitable year of

graduate study at Stanford University," where he emerged in 1901 with his M.A. "Since I had been compelled to earn my own living during these studies, I was now glad to accept a position as head of the department of biology at Seattle. This was pioneering work; and during the next nine years I had the pleasure and incentive of seeing interest in scientific study advance by leaps and bounds in the North-West. This task accomplished, in 1910, although 40 years of age, I decided upon still further graduate study, and selected Cornell University this time, in order to work under Professor J. H. Comstock, whom I claim as one of the greatest living economic entomologists. My studies at Cornell were along the broadest lines, covering entomology, pomology, farm mechanics, &c. In 1912 I completed my special investigation of the life history and control of fruit flies, and was granted the degree of Ph.D." These papers were published as Bulletins 324 and 325 of the Cornell Experiment Station series.

We mention these details to show what boys and young men with the will and the go in them can do in America if not over here, even without means. We take it that with all classes of farm, orchard, forest or estate work, the same tactics would do, and so if this issue falls into the hand of anyone (male or female) who believes that there is a "boom time" ahead for the well-trained, practical economic scientists, they need not feel that the position is beyond their reach. No one can pretend that Dr. Illingworth was content with shuffling through. The way he settled down, when 40 years of age, to complete his desired line of studies would at once disprove this.

It was in connection with Hawaii that we first remember "Our Friend"; he was appointed professor of entomology at Hawaii College, where his work largely embraced the insect pest of sugar cane, which apparently caused him to be consulted by the C.S.R. Co. (Colonial Sugar Refining Co. of Australia) with a view to the introduction of parasites from Hawaii into Fiji to prey upon the borer beetle. These friendly tachinids were, accordingly, bred by the million and let loose throughout the infested areas in Fiji. This done, back the magician went to his college.*

In 1917, Dr. Illingworth moved to Queensland, where the Government had invited him to investigate the pests of the sugar cane. At first he had the idea that he could achieve his task and be able to go back to Hawaii, but the problem was not to be solved so easily as that, and finally he resigned his position in Hawaii in order to devote himself conclusively to the trouble in Queensland.

If we remember rightly, "Our Friend," as one would expect, is a member of several scientific societies such as the American Association of Economic Entomologists, as well as the Entomological Society. He is a Fellow of the Association for the Advancement of Science, and belongs to the Cooper Club (a California bird society), and to the Hawaiian Entomological Society.

* According to *The Australian Sugar Journal*, the parasites did not flourish in Fiji as, instead of feasting, they were fed upon themselves by numerous pests as fast as they, the tachinid fly, emerged. The principal enemy was the common large-headed ant, the *Pheidole megacephala*, which is common throughout all the tropical regions.

Business Notices.

1.—The address of TROPICAL LIFE is Messrs. BALE, SONS AND DANIELSSON, Ltd., 83-91, Great Titchfield Street, London, W.

2.—All literary communications should be addressed to the Editor, and accompanied by the necessary stamps for their return if not accepted.

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5.—The Advertisement Department is at 112, Fenchurch Street, E.C., where all inquiries respecting advertisements, charges, &c., should be addressed c/o the Manager of the Department. At the same time will advertisers kindly note that all copy and blocks for advertisements must be sent to 112, Fenchurch Street, E.C., before the thirteenth of each month, failing which, insertion of same in current month cannot be guaranteed.

6.—The Publishers reserve the right of refusing any advertisement, or the matter or "copy" sent in for any advertisement. They would also be glad if advertisers would refrain from using the "powerful" or extra heavy type that some adopt at times. Doing so renders the paper unsightly, and is unfair to the other advertisers as well as to ourselves. If all used such type, no one would benefit; to allow some to do so and not others, would be unfair.

7.—Advertisers are only entitled to three changes of matter in the year of twelve issues, unless (1) they send electros for insertion, or (2) are willing to pay for the cost of setting up the advertisement. Owing to present high cost of composition and printing work we cannot depart from this rule.

8.—Changes of address should be promptly notified.

9.—Non-receipt of copies of the Journal should be notified to the Publishers.

10.—The Journal will be issued on or about the twentieth of the month.

The Managing Director and Editor of "Tropical Life" will be pleased to consider the printing and publishing of useful technical works on Tropical Agriculture, Medicine, or other subjects dealing with the development of our Colonies and the Tropics generally, as well as similar books dealing with Russia, Japan and the East, whether the books are to be published in English or other languages.

Tropical Life.

JANUARY, 1921.

Rubber Problems.

THE STORAGE OF RAW RUBBER.

THE slump in the rubber market and the rapid accumulation of stock of the raw material give rise to inquiries as to the possible effect upon it during storage for any prolonged period.

Owing to the lack of shipping space in 1918, which necessitated the storage of a large quantity of raw rubber in the producing countries, the subject became one of commercial importance, and investigations were initiated towards the end of that year by the Agricultural Department of the Federated Malay States. Numerous samples had been stored in the testing laboratory for periods varying up to five years, after parts of them had been vulcanized and tested. Fresh tests were made with a number of these samples, and the results indicate that considerable

deterioration results from storage in the tropics, especially in crêpe samples.

Mr. L. Lewton-Brain, Director of Agriculture, in his official report, states that this deterioration is attributed to surface oxidation. A few old samples of slab rubber, stored as such, and containing about 15 per cent. of moisture, were examined last year, and the results showed that little or no deterioration had taken place. This was attributed to the presence of moisture and to the small amount of surface exposed to oxidation.

The tensile curves of stored samples are of a different type to their original ones, and resemble those of poor quality lower-grade rubber. Whether the effect is entirely due to oxidation or to a degradation of the caoutchouc molecule to another polymer requires investigation.

Another feature observed was that the rate of cure of samples after storage tends to even up. Fast-curing crêped samples tend to cure more slowly, while slow-curing crêpes generally cure more rapidly. Slab rubber, cured as such, did not show this feature. Until further investigations have been made, it is not possible to formulate definite theories as to the cause of the change.

Considerable interest has been taken during the past year in slab rubber, especially by several of the large American manufacturers. Consignments of two and a half tons per fortnight for a period of three months were sent to one of the largest firms through the F.M.S. Agricultural Department, and excellent results were obtained. One interesting feature brought out was that approximately 250 lb. of slab, representing about 212 lb. of dry rubber, could be packed in the same space as about 170 lb. of crêpe.

The chief disadvantage of shipping rubber in slab form is that it has to be crêped at the manufactory in America or Europe, where the cost of labour is higher than in the producing countries. As, however, most factories crêpe or re-crêpe all plantation rubber, this disadvantage is not so great as it may appear. Crêped slab requires more drying than rubber shipped dry, and so more drying space would be required. The best method of preparing rubber of this type would be to convert the matured slab into thin worms, which would be dried, pressed into dry blocks, and so exported.

All said and done, however, surely the foregoing and other investigations and reports to hand all tend to prove what we have suggested and claimed for blocking the rubber if there was any chance of its being stored either by the manufacturers after being re-washed in their own factory or by the estates before being shipped. We suggested blocking such rubber right from the beginning, say from 1906, just before Lanadron block came upon the market. When there is any chance, as with war in the air or in actual progress, or when, for any other reasons (as when the retail trade has through inordinately high prices, except perhaps for golf balls, nearly killed the popular demand), it is possible that sales will drag; then, as was found by the French manufacturers, blocking the rubber, say in cubes 8 in. by 8 in. by 8 in., offered the surest means of minimizing waste from theft or through oxidation or deterioration in the inner rubber not directly affected by the air on the outside. In

our book, "The Rubber Industry of the Amazon," we went very fully into the matter (see pp. 84-86) and showed several advantages in connection with stored rubber (on p. 90 it will be remembered by those who know this book that we discussed rubber at the then unthought-of price of 1s. per lb.), both to avoid the heavy loss by deterioration—25 per cent. in some proved cases—and also by theft. As time goes on we find that the demand for this work from the East has increased considerably. Over three hundred copies have been ordered, a large number of which certainly were not for South America.

Vegetable Oil Notes.

BIRTHDAY HONOURS FOR TROPICAL EXPERTS.

CONGRATULATIONS to Mr. Pole-Evans, B.Sc., Chief of the Division of Botany and Plant Pathology in the South African Department of Agriculture, on the C.M.G. bestowed on him for extremely useful services rendered over a long period of years. We met at Brussels in 1910, and even by then Mr. Pole-Evans had made good. The same to the energetic Secretary of the London School of Tropical Medicine, now Sir Pietro James Michelli, who we believe is going strong. It is some time since we met, the last occasion being at the School dinner to Mr. Austen Chamberlain, M.P., after he had raised over £70,000 for the Tropical Medicine Fund.

We are also glad to see the names of Mr. D. T. Chadwick and Mr. H. C. Sampson in the India list for the C.I.E., both well deserved. At times one cannot help feeling that the long, patient, and unpretentious work that the non-military officials have given and are giving us in India and the Far East are not fully appreciated by being noticed as quickly as should be the case. After all, what are the letters? In one case a very clumsy combination; but it is the fact that your work has been noticed and its value realized that is the real reward. Mr. Chadwick, as an ex-Director of Agriculture, for his Anglo-Russian Mission, and latterly as Indian Trade Commissioner in London, certainly deserved recognition. So did Mr. Sampson, as Deputy-Director of Agriculture in Southern India (Madras), under whose care is included, we believe, the Cochin and Malabar coconut industry, that stands in need of much attention if it is to be developed and the status of the people out there raised, as we trust will be the case.

The same can well be said of the Imperial Mycologist at Pusa (Dr. E. J. Butler), who is now at Kew. But what of Mr. Maxwell Lefroy? Is the Government waiting to make him a peer? Mr. Bainbridge Fletcher also has done amazingly well for us, and, of course, there are others.

MR. H. C. SAMPSON IN LONDON.

As we write these notes Mr. H. C. Sampson walks into the office—a most welcome guest. Maybe later on he will publish the last word on the coconut, a popular scientific study of the tree and how to get the most out of it. If ever he does, we hope he will

include some of his wonderful coloured plates and diagrams showing the roots, their growth and development. The cap at the end that bores the way through for the root proper to follow is alone worthy of much attention. If this book appears, that extremity of the *Cocos nucifera* will no doubt be given the prominence that it deserves.

WHY DWARF COCONUTS FALL OFF IN YIELD.

Discussing the Appendix to the second edition of Messrs. Munro and Brown's "Practical Guide to Coconut Planting," Mr. Sampson suggests that from observations made, this species by fruiting so prolifically, as all agree it does, tires itself out; the roots cannot continue to nourish the tree to such an extent, and so the crop falls away for a time, and later on comes more freely again until further exhaustion sets in and a spell of smaller crops comes again. Most people have noted a falling off in the crop, but this is the first time that an explanation has been offered—a reasonable and likely cause too—and especially that we have been told later on to look for better crops again. This is what must have occurred on the Sungei Nipah Estate in Malaya, where we know a substantial drop occurred, as stated in the footnote on p. 184 in Messrs. Munro and Brown's work, second edition. Later on we shall look for better outputs, but all must watch the progress of this well-looking-after estate to see how the output runs, i.e., how many lean years must be tolerated, and then what fat years will follow to pull up the average, and—most important of all—what that average over ten or twenty years will work out at, compared with the ordinary coconut palm.

JANUARY VALUES.

COPRA PER TON—SPOT.

		London		Ceylon		Marseilles		Hamburg and Rotterdam.	
		F.M.S.				F.M.		F.M.S.	
		£	s. d.	£	s. d.	£	s.	£	s.
Jan. 20	...	35	0 0	to 36	10 0	36	10	35	10
" 18	...	35	0 0	"	38 10 0	37	0	36	0
" 13	...	37	10 0	"	42 0 0	38	10	37	15*
" 10	...	38	0 0	"	40 0 0	39	0	38	10*
" 3	...	40	10 0	"	43 10 0	42	10	N/Q	43 10*

COCONUT OIL PER TON.

		Ceylon				Cochin			
		Spot	For shipment	Spot	For shipment	Spot	For shipment	Spot	For shipment
		£	s.	£	s.	£	s.	£	s.
Jan. 20	...	79	0	...	66 0	...	90 0	...	70 0
" 18	...	79	0	...	66 0	...	90 0	...	70 0
" 10/14	...	83	0	...	68 0	...	96 0 to 98	0	...
" 3	...	83	0	...	68 0	...	96 0	98	0

OTHER OILS PER TON.

		Castor		Ground-nut		Palm kernel		Cotton seed	
		Firsts	Crude†	Firsts	Crude†	Crude	Hull spot	Crude	Egypt
		£	£	£	£	£	£	£	£
Jan. 20	...	53	...	47	...	55	...	...	32
" 18	...	53	...	47	...	55	...	...	34
" 13/14	...	53	...	47	...	56	...	...	34
" 12	...	53	...	50	...	56	...	...	34
" 10	...	56	...	52	...	67	...	...	34
" 3	...	65	...	55	...	N/Q	...	...	45

* Rotterdam only. Hamburg not quoted. † English crushed, raked.
‡ Oriental in cases afloat. N/Q—No quotations.

Reviews.

THE MAKING OF MEN. By J. W. Coombs, B.A., formerly Superintendent of the Boys' Reformatory at Chingleput, Madras. 354 pp. 37 illustrations. Price 10s. 6d. net. Seeley Service and Co., Ltd., 38, Great Russell Street, W.C.1, and TROPICAL LIFE Publishing Department.

We have more than once called attention to the useful work that has for fifteen years been carried out at Chingleput by the author of the above book, whilst in October, 1919, he was good enough to figure in the gallery of "Our Friends," and a right good Friend, too. Look at the example he set and how he carried it out, in spite of all obstacles, which must have seemed insurmountable at the time, especially at the start. What we have noted more than anything in connection with Mr. Coombs's work has been the principle involved, viz., to teach the boys that came under his care how to earn a livelihood away from the everlasting rut along which the bulk of Indian children who have to earn their living are directed, viz., by agriculture. Because 80, 90, or 95 per cent. of India's lower-class families, according to the district, are dependent on the soil for a living, Mr. Coombs, whilst teaching his boys (combining the literary with the industrial side right through and never ignoring the advantages and even the necessity of plenty of recreation), how to raise vegetables, rice, &c., was mainly anxious to teach them one or other of the crafts, especially how to weave, so as to leaven and keep up the standard of the huge army of weavers that India needs, some six millions or so, for cotton, silk, jute, or wool, and further, to turn out an expert artist in every sense of the word, and not a mere plain-weaving drudge. Anyone who has seen the Indian *daris* or cotton rugs must realize at once how indissolubly the artist and the craftsman must go together, and how wise Mr. Coombs has been to train the brain of the boys as well as their minds and fingers. Then comes carpentry and wood carving; the illustration facing p. 204 shows to what a stage of perfection the boys reached here. Masonry, brick-making; brick-work and building then follow (in the book). Then we came to a caste which is taught its own trade, but taught in the same way how to do good work, and so be one (or two or three times) better than his untrained fellow Oddas who have not been at Chingleput. (The Odda caste are, by profession, road-makers and well diggers.) The halt, the lame and those boys who are in indifferent health learn to become tailors alongside some of the Mohammedan boys whose parents are already in that trade, and so on.

In England, as at Borstal and in all our reformatory and charity schools, how wise it would be now, when we are so short of artizans and have none at all who seem willing to work as they used to, to train the boys as this book shows us they are being trained in India. At other times it would be better to train them (and also the girls) to become agriculturists, for, as we have always claimed, whilst a countryman, i.e., an agriculturist can always earn a living in town when luck goes against him in the country, you find that townsmen are no good in the country. This has been one of the chief reasons why we have always been so keen to see

agricultural colleges started throughout the Empire—of course, including the tropics and sub-tropics—where they do not already exist.

Everyone connected with a prison or reformatory should read this book, as well as the ordinary educationist and social reformer. When one sees now and again headlines in the papers and some extra-harsh treatment in one of the detention institutions, you cannot help thinking of Chingleput and wondering what percentage of good and bad are turned out by the ordinary harsh disciplinarian as compared with Mr. Coombs's plan. We do not believe in limpness, but the strong arm and hand can have a velvet glove, in the same way as the man with the square jaw and stubborn face can have a mouth that goes down at the ends and eyes that twinkle. It is only a matter of which button you press, and the boys, realizing that the only rule without exception is this, take care to touch the right button, sure that they will meet appreciation and kindness. How often can this be shown to be the case elsewhere? There is much more we would like to say but have not the space. All we can urge upon our readers is to study this book and then—follow the man, always follow the man, from Chingleput.

MANUAL OF TROPICAL AND SUB-TROPICAL FRUITS. By Wilson Popinoe. 474 pp., with 24 illustrations. The Macmillan Co., New York, Messrs. Macmillan and Co., London, or TROPICAL LIFE Publishing Department. Price 30s. net.

This book is quite a masterpiece in its way. We are not sufficiently expert in fruit-culture to speak with greater assurance on it, but have set it up in our bookshelf alongside Van Hall's "Cacao," Copeland's "Coconuts," Ridley's "Spices," and Fawcett's "Banana," which we know leave nothing to be desired for accuracy and thoroughness. There is another reason for this book to be on your bookshelf; the author gives it in his preface, viz., that the banana, coconut, pineapple, oranges and other citrous fruits, and, of course, cacao are not included in it. These have been exhaustively dealt with elsewhere, leaving Mr. Popinoe to fill up the gap—it needed filling—with other fruits.

We are pleased to see tribute paid to those who have worked so hard to make fruit culture more popular, not only as an investment, but also—as we pointed out in our series of articles on "The Home Beautiful in the Tropics"—because it is important for the health and mentality of those living amidst the otherwise monotonous sameness of one estate, amidst many estates, planted to one crop, to have flowers and fruit to look at and enjoy in plenty. Even an estate with forest and pasture lands needs a fruit and flower garden; the eye and the system are better for them. For this reason Mr. Popinoe, as an agricultural explorer, to give him his official title or designation, is right to remind us what we owe to Professor Earle, the Reasoner Bros. of Florida, J. E. Higgins and his confrères in Hawaii; to P. J. Wester and the Philippine group, to O. F. Cook (all except Professor Earle have been "Our Friends"), and a host of others. May their good work long continue, and may Mr.

Popinoe tells us how they progress every now and again.

The chief fruits discussed are the Avocado Pear (pp. 9-78), the Mango and its relatives the Cashew, &c. (pp. 79-160), the Cherimoya (*Anona cherimoya*, Mill), sugar-apple and other anonaceous fruits (161-195), the Date (196-224, a well-written section), the Papaya and Granadilla (22-249), the Loquat (250-271), (the Guava and other myrtles (272-311), and so on for seven more chapters or sections. Anyone wishing to cultivate such fruits as his land and climatic conditions will allow, and the choice is wide, should have this book. The price is typical of the times, but well worth the money, so be wise in time and buy it now lest the next edition should cost more.

A Madrasi on India.

(*Roughly translated into popular English, the following is taken from a letter just received from Madras.*)

WHAT the future of Indian emigration will be, God alone knows. That evil genius of the Government of India—Mr. Gandhi—is putting the whole country in disorder with his policy of putting the cart before the horse, and of non-co-operation. It would seem as if both rulers and ruled are looking to this man as to an oracle for a pronouncement on all topics. It would be far better to ignore him.

As regards the output of sugar in India, the country is certainly in a position to increase her supplies by adopting more up-to-date methods than those now in use, but the difficulty we are up against is the shyness of capital. What we need is not one (Tata's) Sugar Corporation, but half a dozen. In the same way as one of your Governors said that the Gold Coast could produce cacao and sell it at a profit when other centres could not do so, so could India, if given the capital, management and mechanical means, produce sugar against Cuba or anywhere. Nature has ordained this, man alone is the preventative.

This being so, why does not TROPICAL LIFE with its influence, induce the confectioners, brewers, and others in the U.K., who rely on sugar as their main raw material, to run an Anglo-Indian Sugar Corporation, and put down another five million sterling, or five crores of rupees, as has been arranged for over here. Work such a scheme in this—the Madras Presidency, and it will pay well, if well managed. There is room for it, alongside Messrs. Tata's and several more. That is to say that a capital of, nominally, £30,000,000 could be safely invested in Indian sugar producing industries, run on Cuban lines, but with Indian labour, and, in the end, given equal powers with the Spanish island with regard to capital, brains and factory equipment, it is our labour in India that would enable India to outstrip all competitors, and still have strength left in her when the others had been forced to stop through exhaustion.

Nature has given India the wherewithal to do this. If it is never carried out, it will not be the fault of the country but of the people and their advisers. Those who know India best, seem to have the most faith in her ability to improve the quality and increase the quantity of her crops if only the rank and file will ignore the agitators and follow their own common sense.

Coffee in Mysore.

ACCORDING to the *Madras Mail*, the coffee areas in Mysore were expecting more wet. Though wet weather, we are told, towards the close of the year favours the black parasite which rids the coffee of the green bugs that have escaped the attacks of the white parasite that operates earlier, and keeps the coffee in a luxuriant condition, yet it is calculated to favour an outbreak of leaf disease during crop time, and these late attacks operate unfavourably in causing failures in the succeeding blossom. For this reason, an attack of leaf disease early in the year is regarded as a lesser evil provided it is not too severe, as in that case it would cause a lot of damage to the crop on the trees, giving rise to an undue amount of light beans and causing a large proportion of the berries to shank off. Wet weather is always a nuisance when picking is in progress, but though some gathering has been done, it has fortunately not been large. A small quantity of parchment and dry cherry of the new crop has actually reached the coast. This constitutes almost a record.

According to a West Coast circular, the prospects of the coffee market are not exceptionally hopeful. It is to be feared that there will be a further drop in prices, for although some forward sales of crops, which can be depended on to arrive early and contain a fairly large percentage of peaberry, were concluded at Rs. 50 and Rs. 49 per cent. cured ex-bags, all business has come to a standstill, the buyers holding back and watching developments in hopes that there will be a further fall in prices in the absence of competition from buyers for the European market. Owing to a further drop in the exchange value of the franc, all demand for last season's dry cherry and clean "native coffee" has ceased, the agent of the only firm who had concluded some deals having received orders from his principals to cease purchasing. A large stock of pounded and cherry coffee is still in stock. All demand from the Gulf ports has also ceased.

OUR leading article on "Profiteers and Planters" in the December issue seems to have given considerable satisfaction to those who have already had copies judging by the letters we have received on the matter discussed. Here is one from an Anglo-Indian, well-known and much respected. "Your letter appeals to me fundamentally, i.e., financially. With steadily increasing school and other bills, and steadily falling securities, one wonders when it will end. Would that the greatly-put-upon middle classes could combine, but that is impossible. All the same, after their giddy bout of spending, the lower classes are beginning to penetrate the gilt on their cake and find that it is likely to be gritty and bitter. May the reaction come and then all can go ahead, benefiting by the experience gained since 1918."

IT may be remembered that a month or two back, Lord Milner (our Secretary of State for the Colonies) who took the chair at the seventeenth annual dinner of the Corona Club (whose members are attached to the Government or working for it under one heading or another) discussed the matter of the Agricultural College for the West Indies as follows:—"There are many of the Crown Colonies, i.e., the West Indies, West Africa, Ceylon, Mauritius, Malaya. These have done extraordinarily well during the last

few years, and so have a promising financial outlook. But it is not the purely financial side of the matter which appeals to me. I attach equal importance to the fact that, owing to this greater prosperity and these brighter prospects, there is among the people of these Colonies a spirit of greater hopefulness and enterprise than that which characterized them in the past days of economic depression. I could give many instances of that. I will only refer to one or two. There is, for instance, the project at present being so warmly taken up in the West Indies, of the establishment of an Agricultural College of University rank in one or other of the West Indian islands. That project, I feel confident, will be realized at an early date, and no one who knows anything about those islands or about our tropical possessions generally can fail to appreciate the immense importance to them all of the development of agricultural science. *I can only hope, that the example of the West Indies in this respect will find emulation in other parts of our Empire which can well afford to do likewise.* (Italics ours.—Ed. T.L.)

Trade, Politics and Finance.

It is thought, and we hope correctly, that the turn has come in the market so far as sound trading concerns and gilt-edged investments are concerned, and the fact that America has put down some of her wage levels makes one hope to see the example followed on this side. Whilst trade circles have still much trouble to overcome, it is hoped that things will start to run more evenly and smoothly than they have been doing. The fall in the price of all raw materials certainly should help in this, unless the control, assisted by manufacturers, distributors and labour, continue to hold things up well above the purchasing power of everyone but themselves. If they do, naturally no progress will be apparent.

Large telephone bills and a 6d. or 6½d. foreign postage instead of 2½d. will not help matters whatever else may come to assist some movement, and when one also considers the incompetence, if not indifference, of local authorities as to how the public is over-taxed and yet not helped to go ahead with good paths, roads and transport, and also lights at a fair cost, those abroad dependent on the United Kingdom as their market must not expect too much improvement just yet. Still, if those who are being mulcted, paying out all and getting nothing in return, do not complain whilst looking for an improvement, those who only suffer indirectly from this kill-trade policy must have patience. Whether such a policy is good for the United Kingdom does not seem to concern Labour or those in charge of the country. Like Lenin, they believe they are right, of course; and seem disposed to continue thinking so as long as the public allow themselves to be bled. And for what end? Merely to pay men and women larger salaries or wages than any industry or department can stand if they are to be run at a profit. Even telephone operators, an evening paper recently stated, may receive a pound a day (£6 weekly); so no wonder the wheels of progress creak and stick, and that only in Germany does any considerable progress seem to be made. Krupps in one year turned a loss of Mks. 39 millions to a gain of over Mks. 79 millions, and the profits of some hundreds of the biggest companies in Germany have been trebled lately in that

country where, we are told, can now be found, thanks to the war, some of the biggest trusts in the world. Yet Germany is supposed to be hard up and her children starving. One wonders if anyone in England wants money whilst so many are being overpaid or whilst we are being urged to send money to feed the children of our enemies (after paying income tax and excess profits duty on it first), instead of devoting it to develop trade in the United Kingdom or assisting our own people.

Leaving this for those who understand such things, let us take stock of present prices. Rubber and vegetable oils will be found in their respective sections, and taking cotton next, the price of middling American to-day (January 15th) is under 11d. per lb., and is quoted on that basis right away to October. We are told that America holds immense stocks; if so the loss to someone must also be immense. It is to be hoped that the 'sakel' cotton producers in Egypt have not made the mull of trying to hold up the market, only to find that they also had cut away the branch on which they sat and so are in for a nasty fall. Meanwhile housewives tell you that they read in the papers much about this and that being cheaper, but, taking the week's marketings as a whole, there is no signs of it being so in the shops as yet. Granulated sugar, however, now costs but 9d. per lb. retail against 1s. 2d. or 1s. 2½d., so a 4-lb. parcel is now 3s. against 4s. 8d. or 4s. 10d.; but bread is at 1s. 3d. the loaf instead of about 8d., which is what the price could and should be.

Manila hemp is around £57 for spot, and forward (near) deliveries of New Zealand hemp are spoken of at £52 against £54 for spot. East African sisal sold up to £53 and down to £32 against £39 10s. for Java. With sugar, West Indian muscovado runs from 35s. to 48s., against 38s. to 47s. for syrups, and 65s. to 66s. for crystallised. White Mauritius is worth £71. Coffee has been higher, and at the sales good to fine met with a welcome that was pleasant and no doubt remunerative. Bold greenish Jamaica went at 100s. 6d.; fine greenish Nairobi, 117s.; peaberry up to 113s.; common Uganda sold down to 66s. and better grades up to 76s.; peaberry from 56s. to 75s. Good bold Costa Rica went at 125s. 6d. and fine blue 157s., against 153s. 6d. for Vera Paz and 160s. for (Vera Paz) peaberry.

Shellac sold at 350s. for T.N. Orange, and 430s. for A.C. Garnet. Tin is around £204 or a little less, and Copper £73 to £74. The following is a comparison of the principal points in the returns of the Bank of England at the present time and the corresponding week of last year:—

	January 15th.	1921	1920
Bank Bullion	...	£128,280,219	£94,287,105
Reserve of Notes	...	15,114,580	23,540,610
Private Securities	...	80,791,567	84,780,535
Notes in Circulation	...	129,834,265	88,249,635
Rate of Discount	...	7 per cent.	6 per cent
Price of 2½% Consols	...	47½	51½
Price of Bar Silver	..	40d.	77d.

THANKS are due to Mr. Martin, Export Manager of the Anglo-Continental Guano Works, Ltd., for copies of the attractive blotter and calendar issued by that firm, which we have already found most useful. In the old days before the war these souvenirs were looked for on all sides, as they combine the maximum of utility whilst taking up so little room.

The London Cocoa Market.

BY THE EDITOR.

THERE is no room, even if there were the necessity to epitomize the run of the market during 1920, but a glance through that year's file of TROPICAL LIFE will show it to have been a phenomenal year in many ways. Even the wonderful run up in prices of 1907 did not present such a position as the meteor-like ascent of last year's rise and fall in prices, and in truth great was the fall thereof. On that point we need not dwell. Like the point of the bayonet in Jack Walker's cartoon, it is somewhat painful.

What one would like to do, however, is to be able to draw some conclusions from the acrobatic performances of last year's market and to see what we can look for from the causes that generated those antics. In themselves the antics are as nought, but the violent pull on the market muscles of the world has been followed by a reaction and a lassitude that would only be surprising had it not come. The acrobat of very substantial size, like the man of law in "The Seven Ages of Man," is there flat on his back and very much in the way. What means are at our disposal first of all to reduce the bulk that impedes our progress and, having done that, to think of how we can avoid such a thing happening again. The greater the force, the greater the reaction. Thank goodness when life is pumped into the cocoa market again there is every sign of its running a more even humdrum existence. Then, however, if it does only give bread and butter to those interested it will prove far better for everyone in the long run.

All the same, one day, when Europe settles down, . . . but no, this is not a time for prophecies, let us stick to facts, they are solid and ugly enough to please anyone. We have had enough of the flighty and frail ones for some time to come; now for something solid.

Cablegrams from America, the statistician at Messrs. C. M. & C. Woodhouse tells me, show that the United States consumed, i.e., took into consumption (rather more than) 20 per cent. less cocoa than in 1919, say 128,482 tons, as against 169,327 tons in 1919. In bags it came to 1,936,000, against 2,570,386 in 1919. What stock was left on hand at the end of December we have still to learn, but at the end of November the total was returned as being only 386,872 bags, quite a small number in comparison to the large turnover. In 1919 the stock on December 31st was 230,475, but before the war it used to run into thirty and forty thousand bags only.

I have always considered that the U.S.A. have been over-valued by those who do not trouble to go into figures as being "miles ahead" of the U.K. Such people would lead you to imagine that the U.S.A. was *the* market of the world and the U.K. nowhere. If the following figures are correct, as I am sure they are, surely, speaking from a *per capita* point of view, it is the United Kingdom which is ahead with the United States as a very poor second. We have a population of under fifty million, while America has 110,000,000 or so. What more need be said?

Comparative figures between the U.K. and the

United States showing the relative importance of each as an importer and consumer of raw cocoa:—

	January—December 12 months	1919 Bags	1920 Bags.
London, received or imported	...	400,136	442,346
Liverpool	...	1,159,049	1,252,669
Totals	...	1,559,185	1,695,015
At 15½ bags to the ton the B. of T. returns show the U.K. to have imported	...	1,706,550	1,616,371
Or at 16 bags to the ton	...	1,751,600	1,668,512
Against this the U.S.A. sold for consumption	...	2,570,382	1,936,000

I certainly think that, in proportion to our population, we have decidedly done best so far.

The Board of Trade figures have appeared for the entire year and one is obliged to note how the monthly falling off in our deliveries for Home Consumption continues to be more than lamentable (3,610 tons only taken into Home Consumption during December, against 6,534 tons in 1921); and what is equally unpleasant to chronicle and perhaps more disappointing, is the equally substantial reduction in export. In that at least you would think we could not only maintain our level, but quite easily have shown an increase of 2,320 tons instead of a falling off equal to that amount. Here are the figures showing a decrease of nearly 25 per cent. (actually between 23 and 23½ per cent.) in the deliveries for Home Consumption for the whole year:—

Board of Trade Returns for the U.K.—January-December.

Raw Cocoa Jan. only	Landed Tons	Del'd. H.C. Tons	Export Tons	Stock Dec. 31st. Tons
1913	3,592	1,996	473	9,900
1918	10,843	4,819	—	24,300
1919	5,246	6,534	4,572	35,900
1920	3,982	3,610	2,252	51,500
	Decr. 1,264	Decr. 2,924	Decr. 2,320	Incr. 15,600
Jan.—Dec.				
1913	...	34,982	27,161	6,778
1918	...	42,392	61,253	584
1919	...	110,100	64,613	27,946
1290	...	104,282	50,654	43,737
	Decr. 5,818	Decr. 13,959	Incr. 15,791	

Taking the year's trading as a whole, we received 10,000 tons more than we delivered; also, whilst receiving nearly 6,000 tons less than in 1919, we delivered not quite 2,000 tons more.

Writing on the excess of cocoa, the *Confectionery Journal*, in its issue for January 13th, said: "If tea and rubber planters can arrange to restrict their crops whilst the German and Slav races are getting on their legs again, why cannot the cocoa planters do the same? Restriction of output does not mean restriction of income to the producer; if worked properly and successfully it will, on the contrary, give him a larger and (still more important) a more reliable income with less trouble and anxiety. As with the producer, so must it be with the manufacturers who, during 1920, must have felt very sore (possibly the thoughts are still distressing) at the way in which the heavy stocks they accumulated at top prices then ruling, slowly dropped

and dropped in value to half and less than half what they gave for them, to say nothing of the needless cost of warehouse room, of insurance and interest lost as well. Whilst this was going on new-comers dropped in, purchased at lower rates, incurred no costs for rent and insurance, and so have cut a ledge in the market in which they are firmly establishing themselves, in many cases never to be removed. Far better, therefore, for established firms here and producers abroad to put on the market during the next two or three years just enough cocoa to keep things going but never enough to drown the market and, as now, to harm both producers and old-established manufacturing firms without doing the ultimate consumer any real good. If Accras fair fermented are at 40s. to-day and 25 per cent. were knocked off the world supply of cocoa generally, including Accras, their price should go to 50s., or even 55s. or 60s., and remain around these prices. Here, therefore, is a price that will not hurt the consumer and will, on account of its stability, if for no other reason, do much good to producers and manufacturers alike.

"Some such scheme as this, if the unexpected were to happen, and such a plan could be arranged, would be far better than to go on as now, with estates neglected when prices are abnormally high because money comes in so easily, and then equally neglected when prices are abnormally low, because the cocoa is not worth troubling about."

The stock of cocoa in London on December 31st amounted to 203,390 bags, of which 72,500 were Guayaquils. With the American stock still to be ascertained, there must be at least a quarter-million bags of these between the U.K. and the U.S.A., to say nothing of invisible stocks in these two countries, in Holland, &c. Plenty in first-hands, in second-hands and in no hands at all, but very keen to be purchased by someone. This is not to be wondered at in face of the news from that Republic. Can anyone say what the fate of the A.A.E. (Asociacion de Agricultores del Ecuador) will be? Will it be carried on for another term after this year or, if not, what will happen? How many million *sucres* did this body owe to the various banks at the end of 1920, and how much larger will the debt be in a year's time when, I believe, the present agreement (of a tax of *sucres* 3. per quintal) to finance the Asociacion comes to an end? If the total debt were to amount, at the end of 1921, to twelve or fifteen million *sucres* (\$3.20 of which now go to \$1 gold) against the year's revenue of S/2,700,000 (900,000 quintals at S/3), what will happen to this debt when the revenue comes to an end if the tax is not renewed? At present this seems in doubt. What will then be the state of Ecuador and of everyone within its boundaries who depend on the Government for their salaries, or outside Ecuador, needing interest on loans or to have debts liquidated? Here is a conundrum that beats any *Daily Mail* puzzle to solve. If anyone could do so to the advantage of Ecuador and her creditors, what a prize should be theirs for such skill?

Returning to the discussion of why so little cocoa has come to London of late; with all our faults, surely now that we are as we are, we are not worse than New York, who is not backward in saying hard things of herself. We still have the advantage of being close

to the Continent to send over the cocoa whenever the merest zephyr of demand springs up, a demand too light to reach any producing centre or even America, which is comparatively close.

If our manufacturers are full up, so must the Americans be on the whole. It would be interesting to know what the comparative cost of the American manufacturers' stocks of cocoa and sugar work out at in comparison with those over here.

"Manufacturers" (i.e., in America), reported Messrs. W. R. Grace and Co., on December 13th, "have for the most part bought very wisely, and this fact alone has saved the chocolate business from the unpleasant conditions which prevail in many other lines. With the present large stocks of manufactured goods on hand and the raw materials which have already been contracted for, it would seem that from three to six months will be necessary to work out of the present condition of the raw cocoa market. . . . February should find a better market for future delivery parcels, and prices at that time will probably reflect the anticipated business." Now February is not even three months ahead of mid-December, and as we stand to-day in any case, I consider February to be far too near to look for any improvement by then. Three or six months ahead, i.e., March or June, is nearer the mark. Let us hope it will be by then. As we are at present, both in America and over here, most makers apparently are backward in committing themselves for future deliveries on account of the uncertainty of their arrival and will continue to be so until general conditions change enough to warrant a ready sale for the finished product.

It is only fair to Messrs. Grace to say that one of the leading manufacturers over there wrote on December 27th that, although general conditions in the U.S.A. were somewhat unsatisfactory, "we are optimistic of the future and believe that, after the turn of the year, things will pick up considerably and a much more satisfactory condition exist."

Whilst fair fermented Accras seem fairly steady at 40s. in London, against 38s. offered by pressing sellers at Bordeaux, little has been done this week in France, but a "few hundreds" of tons were reported sold recently at 38s. Quite a good sale in these days, so why say a few hundreds of tons, when even to sell a few hundred bags would make some folks skip with joy.

Meanwhile the future remains an enigma, especially for sugar. The *Confectionery Journal* on January 6th discussed the sugar position very fully, but I have not the face to quote it fully again and to give a sentence or two would not suffice. But with cocoa, in the same way as tea in the Russian market, when Germany and Central Europe generally start to buy fully we shall soon see the mountain dissolve. As it is, pickle as Germany may just now be in, it is still believed that when the 1920 figures are available it will be seen that Germany took about half her normal deliveries. If this turns out to be correct, when she goes "full steam ahead" she should double her pre-war demand, which means she will need four times what she secured last year.

Now we will turn to stocks. London, on January 15th, had on hand the following:—

London Stock, January 15th	1921 Bags	1920 Bags	1919 Bags	1913 Pre-war
Trinidads ...	30,121	23,585	15,462	3,432
Grenadas ...	19,852	11,803	6,343	2,311
Other W.I. ...	11,600	5,675	2,784	4,469
British African ...	11,374	20,262	31,043	7,623
Portuguese African ...	1,055	17,644	13,707	5,664
Cameroons ...	1,378	1,973	1,319	7,745
Ceylon and Java ...	19,796	6,915	7,638	12,286
Guayaquil ...	71,400	7,364	14,187	15,965
Bahia and Brazil ...	907	1,326	1,174	2,931
Other foreign ...	34,963	6,940	3,507	7,261
Totals ...	202,446	103,487	97,164	69,687

Havre had a small December as regards landings, but for the entire year her total imports were practically the same as in 1919 (673,145 bags against 673,830 in 1919, and 38,187 only whilst the war was on in 1918). Her total deliveries were 596,463 bags, which is well ahead of the 450,543 bags delivered in 1919. Here is the Havre stock at the end of the year:—

January 19th	Bags 1921	Exchange New York \$3.76 Paris Fcs. 59.50	Bags 1920	Exchange New York 3.69½ Paris Fcs. 42.75
		Value Fcs.		Value Fcs.
Pará ...	10,937	170 to 183	9,624	255 to 265
Bahia ...	44,218	145 „ 181	19,186	235 „ 255
Venezuela ...	24,518	207 „ 296	18,208	260 „ 300
Trinidads ...	45,259	177 „ 180	22,325	255 „ 265
Grenada & O.W.I. ...	10	158 „ 176	4,024	244 „ 255
San Thomé ...	40,114	132 „ 168	19,676	190 „ 240
San Domingo ...	44,264	145 „ 155	753	215 „ 230
Haiti ...	36,082	120 „ 160	11,552	190 „ 205
Accras ...	25,275	140 „ 144	54,626	205 „ 215
Guayaquils ...	12,164	225 „ 245	69,542	259 „ 280
Others ...	26,741	—	3,186	—
Totals	309,582 bags		232,702 bags	

Since writing the above, the price for Accras seems to have first improved, so that fair fermented was quoted at 42s. and good at 45s., and then to have gone back to 39s. and 42s. respectively. The price tacked on to Grenadas, however, remains around 55s. for the best, against 70s. to 72s. for Trinidads with sales at 70s. Ceylons are worth anything from 100s. to 110s. for fine bold. The price for fine Summer Arriba cannot be fixed; it may be 120s. or quite a lot over, whilst other grades (of Arriba) are worth something around 70s. and 55s. for Machala or Caraquez. Superior Bahia, like fine San Thomé, was put at 70s. or a little more, but actually sold at 62s., which is still, with the preferential duty on Grenadas, some 15s. really above that growth. The absence of fine Bahia has alone enabled it to obtain such a price. And that is all I care to say as to values, nominal or actual, just now.

By adding 4,358 tons shipped in October to the 97,779 tons shipped to the end of September shows the ten months' exports from the Gold Coast to have amounted to 102,137 tons. It will therefore need but 18,000 tons more to complete the 120,000 tons which I reckon to be that Colony's share just now.

Summing up, the basis of the market at the time of going to press is only 38s. for fair fermented Accras, 54s. for fine Grenadas, and 70s. for Trinidad. Lower prices are promised "to arrive," and so look out. Those who make unfermented and generally common to fair and even medium cocoas will especially suffer judging by the state of affairs at the moment when unfermented cocoas are quite unsaleable and seem likely to remain so for some time.

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The Coming Rubber and Tropical Exhibition and Congress.

ROYAL AGRICULTURAL HALL, JUNE 3RD TO 17TH.

(See back cover.)

AN instructive pamphlet with "Notes all about" the above exhibition has been issued, giving a list of the various Governments who have booked space (some thirty-four in all) and the exhibits other than rubber which will be included. Then comes a short paragraph with information about some of the exhibitors and full particulars of the Congress and Handbook to the published. A note to Miss Edith A. Browne, 43, Essex Street, Strand, W.C.2, will bring anyone a copy of the above until the supply is exhausted.

The *Rubber Age*, published from the same address, also gives in their January and February issues a good deal that is fresh news on the subject. Mr. Frank Evans, of Trinidad, Accra, and now in charge at the Cameroons, hopes to be present and read a paper, not necessarily on cacao, it may be on drying bananas. Mr. Tudhope, Director of Agriculture at the Gold Coast, will, it is hoped, discuss agricultural developments in general out there; whilst several new men prominent in tropical agricultural development work, officially and scientifically, have joined one or other of the committees.

The list of competitions with the trophies or other awards to be offered has been completed and can now be had for the asking. Those who have drawn up the conditions include leading men in the rubber, vegetable-oil, cacao and cotton world; more experienced authorities could not be wished. They know exactly what is wanted, and so all that remains is for producers to come forward and show that they can exactly satisfy the requirements of the makers. In the past sellers of goods in England have been told that they offer what they choose to make and not what their customers wish to buy. The complaint has been levelled at producers also. "Give us what we need," say buyers over here, "and use the exhibition to send your samples, for us to judge whose produce is nearest to, perhaps exactly like our requirements, and we will first give you a prize and—quite possibly, but there is no guarantee—we shall be only too glad to buy your crops, if of similar quality, as fast as you can turn them out.

The *Malayan Tin and Rubber Journal*, in their issue of December 31st, whilst discussing this year's Exhibition and Congress, tells the following story of the first of all the rubber exhibitions, viz., that held in Ceylon in 1906, when the response was so generous

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that at the beginning of August (the day named for the opening of the Exhibition being September 6th) the committee found itself in the embarrassing position of having applications for more space than any building in Ceylon could supply. The situation was rather startling. The committee were alarmed at the possibility of a fiasco, but happily a native Kandyan gentleman of rank, Mr. W. Dunawilla, suggested that he might be able to get such a building as was necessary erected after the old Kandyan style of architecture and within the time at the committee's disposal. His offer was promptly accepted, and he was given *carte blanche*, one of the large open spaces in the beautiful Botanic Gardens at Peradeniya being allotted as a site for the exhibition. Mr. Dunawilla appealed to all the Kandyan villages for men, and the villagers answered the call with enthusiasm, for the purpose of producing a great building after the pattern of the buildings of the ancient Kandyan Kings. Within a week 3,000 men and six elephants were at work, and there was visible the value of inherited talent and tradition. There was no necessity for special plan or specification. Carpenters, blacksmiths, painters and decorators worked at their trades as their fathers and their fathers' fathers had worked from generation to generation, back to the time when Kandy was a kingdom, reproducing the never-forgotten forms and colouring as in the days of old. It was a beautiful building, filled with brilliant colours, and was handed over to the committee complete in every particular in twenty-seven days. On the appointed date, therefore, Sir Henry Blake had the pleasure of opening the exhibition, of which some of the pillars with their ornamentation are still to be seen in the Ceylon Court of the Imperial Institute at South Kensington.

Sugar Notes.

LABOUR SURPLUS IN INDIA.

It is interesting, although extremely aggravating, to note that whilst the West Indies and elsewhere need East Indian labour to cultivate their estates, but seem unlikely to receive such assistance, it is estimated that there are about 11,000 beggars in Calcutta alone, of whom 9,000 are described as being able-bodied, and so suitable for estate work or to be of use in one form or another both to themselves and India (or elsewhere). Far from being so, such men have deliberately adopted the calling of the beggar because we are told by the Committee on Mendicancy in Calcutta (per the *Indian Planters' Gazette*) that instances have been brought to their notice of men giving up employment and taking to begging as being less arduous and more profitable. The only remedy, it is suggested, would be to pick out and provide for genuine beggars and to punish the others. One day, when perfection is reached, every man will be liable to a challenge by the authorities to show how he is earning his living and whether he is as usefully employed as the needs of the labour market and the times would expect. If the man is a proved slacker he must be fined or taxed for such a luxury if he has means, the idea being that if he will not do his share to help

his motherland along useful lines in one way, he must be made to do so in another. If the man has no means, but has come down through slackness, he must be sent to a labour or tramp farm, and there fed and looked after according to the effort he himself puts forth to supply himself with food, clothing and lodging. Shut off from any chance of begging or thieving such men can either do some work or shiver and starve, and the sooner they disappear off the earth, whether in India, England or elsewhere, the better. Meanwhile, we feel sure that Calcutta is not the only place in India where these able-bodied won't works (I.W.W. = Indian Won't Works) are to be found. Why not round them up, and if convicted of begging when work is obtainable, send these men for a term out to the sugar estates for the benefit of all concerned. If this were done, and they did not want to leave India, they would give up begging and take on regular work, thereby releasing others, a willing and capable class of labour for use on the sugar estates where they are wanted and where such men will be glad to go.

IS SUGAR WORTH REVIVING IN CEYLON?

Under the above heading the *Times of Ceylon*, weekly edition, published two interesting articles in their issue of December 22nd, from the pen of Mr. A. W. Winter, of Baddegama. These were accompanied by a leading article on the subject, from which we gather that the grandfather of Mr. Winter was the first European to try his hand seriously at producing cane sugar in that island on a commercial basis. This was in 1826, nearly a hundred years ago, in the neighbourhood of Katutara; but, about 1840, operations were transferred to Baddegama, near Galle, where Mr. A. W. Winter still resides apparently. Sugar of an excellent quality, we are told, was produced at a profit up to as recently as eight years ago, when the increased cost of labour, the lower price of sugar, and the allurements of tea and rubber, caused the sugar-cane to be replaced by these other crops. With the number of able-bodied beggars in India, the better prices that is certain to rule for sugar (when we have settled down and are consuming on a pre-war basis), and the none-too-attractive price for rubber, it may yet be that we shall see cane sugar once more produced in Ceylon on a commercial basis, especially as in quite recent years those who persevered did very well. It is understood that the Department of Agriculture over there has the matter in hand and is considering certain centres where, under capable management, the chances of success seem bright. The tale told by Mr. A. W. Winter of the earliest work known to have been done in cane sugar out there is extremely interesting, as he gives particulars of the varieties of cane used, i.e., Otaheitan from Mauritius, and how one man made a fortune in coffee and lost it over sugar, when another transferred his attention from sugar to coconuts.

IS SUGAR INDIGENOUS TO CEYLON?

This is Mr. Winter's query. He then goes on to tell us that, if Tennant's quotation is correct, and we have no doubt it is, sugar-cane may now be considered indigenous to Ceylon. The only variety that

existed in the island must be the *Kalu-uggas* or the *Tibboo etain obat* (the black medicinal cane, both of Ceylon and Malaya) to be found in most villages—the juice is particularly sweet. If it has not already been done, it may be worth while hybridizing this variety.

The quotation by Tennant referred to is from his book, Vol. i, p. 455, where he says: "Sugar was obtained not only from the palmyra and kitool palms (and palm sugar, as distinguished from cane sugar, is spoken of in the "Mahawansa," in the second century B.C., Ch. xxvii, p. 163), but also from the cane which, besides being a native of India, was also indigenous to Ceylon." Cane sugar is referred to in the "Mahawansa," 161 B.C. Ch. xxi, p. 192. A sugar mill for expressing its juice existed in the first century B.C. in the district of the Seven Corles ("Mahawansa," Ch. xxxiv, p. 208), where, 1,500 years afterwards, a Dutch Governor of Ceylon made an attempt to restore the cultivation of sugar in Ceylon. All this and much more we are told in the two instructive articles referred to.

Rubber and Cotton Notes.

WILL AMERICA LEVY AN IMPORT DUTY ON LONG-STAPLE COTTON?

THIS month space will only allow us to discuss the excellent annual reports issued for 1920, especially on what has been done with rubber in the past and what we can look for during the coming eleven months. Before doing so, however, we would like to say that we encountered one of the contributors to the *Times of Ceylon* wending his way to their new offices in Spicer's Palace, otherwise Blackfriars House, New Bridge Street. He told us that in his notes he had expressed doubt as to the wisdom of the reported import tax to be levied by the United States on long-staple cotton—in favour possibly of the American-Egyptian cotton planters in Arizona. "I am afraid," he told us, "that such a tax, if it does not add to the cost of, and so discourage the sale of rubber tyres in America just when things seemed likely to settle down and a better demand to spring up, it certainly would not increase the demand. Of course, the drop in the price of fine long cotton as Egyptian sakel has been tremendous, and one can only hope that it holds the record, since one paper stated that its extremes so far ranged from 92d. down to 22d. during 1920. Probably it is lower still by now, and so whether the American duty is placed at 8 cents per lb., which I believe is the case, or 8d., it surely cannot make much difference to the buyers of raw material that has already had the jumps to such a degree.

CORD v. COTTON FABRIC TYRES.

In their annual report, Messrs. Lewis and Peat, Ltd., claim "with regard to the American tyre trade, a factor which has had a great deal to do with the over-estimating and over-stocking by manufacturers during 1920, and the importance of which is not fully realized in this country, has been the introduction and success of the "Cord" tyre. The estimated requirements of raw rubber for tyre-making was based on a consumption of six tyres per car per year. This

was the canvas fabric tyre, and averaged a life of about five to six thousand miles. Owing to the scarcity and high cost of cotton, manufacturers introduced "Cord" tyres, which have been a great success so far as the user is concerned, and have given a mileage of anything from ten to thirty thousand miles per tyre. This and the improvement in ordinary fabric tyres and the resultant greater mileage has reduced a car's tyre requirements to only $3\frac{1}{2}$ tyres per car per year (against six tyres as above). A simple calculation will show how this upset manufacturers' calculations for their raw material requirements. These tyres, although a little more expensive, are in general use to-day in America, and practically nothing else is made except, of course, "solids." It is estimated that there are sufficient tyres in stock in America to last three months. The number of cars running (in U.S.A.) is given as 8,000,000."

One wonders whether it has been this substitution of "cord" for cotton-fabric tyres that has caused the Arizona long-staple cotton growers to find that they need fiscal protection, since, as with sakel Egyptian, prices have fallen away so seriously.

On the other hand, now that this fine fabric cotton has fallen so low, will the Americans find "cord" tyres too costly and so go back to cotton-fabric foundations again, or can and will "cord" tyres come down in price? Present low prices for long-staple cottons should also increase the demand for them and thus improve their value as well.

COMING TO THE RECORD OF 1920.

This has not been altogether a pleasant year; taken on the average it possibly would pass, but we prefer a more even existence. Jazz bands and Victory Balls never did appeal to us. They are all noise and make-believe, like the rubber and other markets from December, 1919, to March, 1920, have been, after which came the reaction, like the Bill, and then there was no more laughter—only a noise. With plantation kinds, the excellent chart and quotations of Messrs. Lewis and Peat, Ltd., shows that prices ran up to 2s. 10½d. at the start, but closed the other end of the year around 9d. only, against 2s. 7½d. and 1s. 1d. as the extremes for Pará. All speak up well for London as they should do. We have had our Verdun in the fight over markets just as fiercely and as seriously (to the world) as the Army in France, and we fought as strenuously to weather the onslaught as France did on the field of battle. Had either of us failed to make good, the results to the world in general would have (in comparison) been equally serious to others as well to ourselves.

WHAT MESSRS. LEWIS AND PEAT, LTD., HAVE TO SAY.

"The London market," this firm tells us, "although constantly upset and nervous at the unprecedented fall in values, has had to bear the brunt (and it has borne it well with plenty of "vim" and experience to help us avoid any more if possible.—ED. T.L.). America has thrown back very large quantities on London. Rubber unsaleable in the East for direct shipment to New York has been diverted to the U.K., and the financing of a very great part of the huge visible supply is being done with British money. At times

the position was extremely critical (so they were at Verdun.—ED., T.L.), especially during the settlement of the very heavy commitments for the last quarter; but the worse has been safely passed and the New Year opens with a better feeling and more hope for the future."

AMERICA SINGS THE SAME TUNE OVER CACAO.

Whilst we were standing the racket to please America she evidently was having some troubles of her own from elsewhere. One wonders who told her to dot her "i's" and cross her "t's." Was it Germany? We fancied also, that firms over here, also with cocoa, complained of a similar evasion of contract, and that was not with Germany, as when we were told (in the *International Confectioner* of New York): "In the early part of 1920 the prospects were good. Everything pointed to a steady and large demand for cocoa products, but in the second half of the year the slump began. It started when the sterling exchanges dropped. Foreign buyers of our products found they could not pay for what they ordered and contracted for, at least not in dollars. Then commenced the usual trade trick of accusing the American firms of not shipping according to samples, of not crossing the 't's' or dotting the 'i's' in their agreements," &c.

It has been, therefore, a time when all have had to suffer, and most, if not all, markets have laid themselves open to criticism. But that is past history, let us think of the present and the future. The *I.C.* says the same as when it concludes by saying that, "From now on it is a matter of education, efficiency in the factory, distribution and aggressive advertising. (No one can pretend the English firms have been advertising aggressively—ED., T.L.). Heavy losses due to depreciation must be made up, and the best time to start repairing such damage is right now."

COTTON PROFITS—AND WHO GETS THEM.

Arising out of the fall in the price of raw cotton, and the consequent danger that the area under cotton will be greatly curtailed next season, Sir Charles Macara recently made the following statement to a *Manchester Guardian* interviewer:—

"Cotton has fallen a long way below the cost of production, and the inevitable result will be that a great curtailment in the acreage devoted to cotton will follow. I have contended for many years that cotton is a commodity which, if properly packed and stored, can be kept for years without deterioration, and a similar recommendation to what I made at the outbreak of war, that the surplus cotton should be taken over by the Governments interested, should be adopted now. This would save the situation.

"If action is not taken we shall have a repetition of what occurred in the early days of the war, when American cotton fell from 7½d. to 4d. per lb., involving all concerned in heavy losses, and subsequently rising to 45d., increasing the price of the world's cotton crop by 1,000 million pounds sterling, and raising the price of clothing enormously."

Sir Charles, as the head of Messrs. Henry Bannerman and Sons, Ltd., cotton spinners, and also his

friends in Manchester cotton circles, could surely do more than call attention to the above fact. What a pity it is that the cotton planters cannot go on strike until the profits made by those who use their crops as raw material are placed more on an equality with planters' profits to-day than must have been the case when the head of Messrs. Bannerman was moved to make the above remarks.

COTTON SPINNERS' PROFITS IN THE U.K.

Messrs. Bannerman's dividend does not appear, unfortunately, in the table published to show the profits made; but so far as we can gather (from the *Manchester Guardian's* review of the markets during 1920), after allowing for increased capitalization, 180 cotton-spinning companies, aggregating a capital of £19,673,774, earned on an average 25.11 per cent. during 1920. No wonder, therefore, that we also read that 75 per cent. of the concerns, wrote up the value of their properties from three to seven times their pre-war values. What have the cotton-growers to show against this? Here are details of the two biggest dividends shown:—

		Share Capital		Dividend		Per cent.
The Bell Co. ...	...	£15,000	...	£75,000	...	350
The Times Co. ...	...	£32,000	...	£136,000	...	425

The returns of only 67 concerns out of the 180 mentioned are shown. One wonders what dividends were secured by the records in the others. One wonders whether, in the crops to come, producers of all crops cannot arrange, as Labour is fighting to do over here, to secure regular profits on a parity with those gained by the manufacturers—whether good or bad. If they do not, as is the case at present with all the leading crops—cotton, sugar, rubber, &c.—the slump will drive too many people out of the producing world than we can spare. Those with big accumulated profits who do not want to face the lean time ahead, as well as those who have no profits to support them and so cannot keep on. To the factory over here, whichever the cause, the results will be the same, viz., a serious drop in outputs until prices run up again. Far better for both sides to do as suggested in the *Confectionery Journal* of London, with sugar and cacao, and "arrange that a round-table conference shall take place at least once a year between actual manufacturers and actual producers (everyone else to be kept out or to sit at the side and only give their advice when asked to do so) to discuss outputs and prices, so that the one side can be sure of their raw material and what it will cost, whilst the other will be sure of their market and the profit they can look for. Over-production could be minimized and under-production often avoided to some extent by such meetings and discussions."

HOW TO BOOM RUBBER—LET EVERY MAN DO IT FOR HIMSELF.

We like the idea conveyed in the "Publicity Programme for the Rubber Industry," published by the American Association, and feel that its use could be extended to other industries as well, especially the cacao trade, which is, if possible, more of an invalid

than rubber. According to the London *India Rubber Journal*, the idea is to drive home in every way possible the romance, the merits, and the uses of rubber in the same way as the gas propaganda committees, the Chilean Nitrate Committee and similar concerns are doing such wonderful work in showing the public by lectures, pamphlets, the cinema, demonstrations, &c., why you should use (anyone's) gas or nitrate of soda, or why you should eat bananas, or drink coffee, &c. Such propaganda is not out to boom or advertise any particular brand or make, but to increase the demand of the article in general. It has been done with Indian and China tea with great success in the past, it certainly could be done with rubber in the future. Home economy lectures, if worth listening to at all, will always draw good audiences if held at suitable hours. There can be shown and demonstrated the use of every rubber or partly rubber article for the house or office. No one knows everything, and all wise housewives (and the pinch of the tax collectors has not left many foolish ones about) are ready to learn. So we welcome this idea of a national and international rubber propaganda, and hope it will catch on and remain busy for a good time.

ONE WORD MORE—ABOUT RESTRICTION.

The general idea is that there are about 250,000 tons of raw rubber about, say 225,000 tons landed, and 25,000 to 30,000 tons afloat. Now we come to output. Again turning to Messrs. Lewis and Peat's figures, we see that the total production of rubber has run as follows since 1913, i.e., during the last eight years, whilst against the record price of 12s. 10d. for plantation and 12s. 6d. for Pará in 1910, the price in 1920 averaged 1s. 11d. and 1s. 11½d. as compared with 2s. 1¼d. (plantation) and 2s. 1¾d. (Pará) in 1919.

WORLD'S PRODUCTION OF RUBBER.

	Plantation Tons	Brazilian Tons	Other kinds Tons	Total Tons
1913 ...	47,000	39,500	22,000	108,500
1914 ...	64,500	36,800	14,350	115,650
1915 ...	96,000	37,000	13,000	146,000
1916 ...	150,000	37,250	14,750	202,000
1917 ...	215,000	38,900	12,000	265,000
1918 ...	200,000	31,450	18,550	250,000
1919 ...	314,000	34,815	17,585	366,400
1912 ...	315,000	35,000	10,100	360,000

Now about that 50 per cent. restriction. Does this mean that, if everyone plays the game, we shall produce only 180,000 tons in 1921, say even 200,000, which, with the 250,000 tons in stock and afloat, means that the world will thus have 450,000 tons upon which to live? One sincerely hopes it will, so as from all appearances even that output will still leave some over for 1922.

THE COTTON OUTPUT.

There have been those who talked of a 6,000,000 cotton crop for America, partly on account of the boll-worm and partly on account of unfavourable climatic conditions. If these yarns referred to the 1921 crop, there is a mistake somewhere as, according to the Commercial Issue of the *Manchester Guardian*, p. 319, the output will approach 14 million bales, against about 12 million in 1920, Texas alone jumping from

2,500,000 to 3,800,000 bales. What the planters will do with it all remains to be seen, our contemporary adds, but it does not appear likely that they will be able to carry out their plan of storing a large part of it. If they fail in that prices may go lower still, but in any case it may be taken that they will not produce a 14-million crop next season (1922) however favourable the weather may be.

PRICES AND STOCKS.

Coming now to prices, according to Messrs. Lloyd, Matheson and Carritt, these compared as under on February 17th:—

Spot quotations—	1921 Feb. 17th.		1921 10th.		1920 19th.	
	s.	d.	s.	d.	s.	d.
Smoked sheet (F.A.Q.) ...	11	½	...	11	½	...
Crêpe (standard quality) ...	1	13	½	...	1	13
Pará ...	11	½	...	11	½	...
Forward positions—						
	Smoked Sheet				Crêpe	
	s.		d.		s.	d.
1921, February ...	1	0	...	1	2	...
„ March ...	1	0	...	1	2	½
„ April—June ...	1	0	¾	...	1	2
„ July—September... ..	1	1	½	...	1	3

Stocks—		Tons		Tons	
Plantation, London } ..	Feb. 12th, 1921,	58,010	...	Feb. 14th, 1920,	19,954
Pará, Liverpool } ..	1st, ..	700	...	..	500
		Total 58,710		Total 20,454	

BALATA.

This market continues quiet. Venezuela block is now quoted at 3s. 4d. spot or 3s. 3d. c.i.f. West Indian sheet is valued around 3s. 11d. to 4s. spot, against 2s. 9d. for good quality Panama block or 2s. 8d. for Tumaco.

" The Cult of the Coconut.

COPRA AND COPRA MANUFACTURE.* PART II.

A HIGH-GRADE product suitable for the manufacture of edible products can not be made with the "tapahan" drier, which cannot be too strongly condemned, and as a matter of fact the abolition of this system of drying is only a question of time, when the difference in price between clean, sun-dried or machine-dried and smoke-dried copra will be so great as to automatically force the "tapahan" dryer out of business.

In the rainy coconut districts artificial driers will of course be imperative, but in those regions where the bright days are sufficient to render the perfect drying of the meat practicable, for instance in Cebu and Bohol, sun-drying is particularly well adapted to the needs of the small, individual producer, for sunlight and heat may be had without the asking. However, in order to produce a better and cleaner copra, the

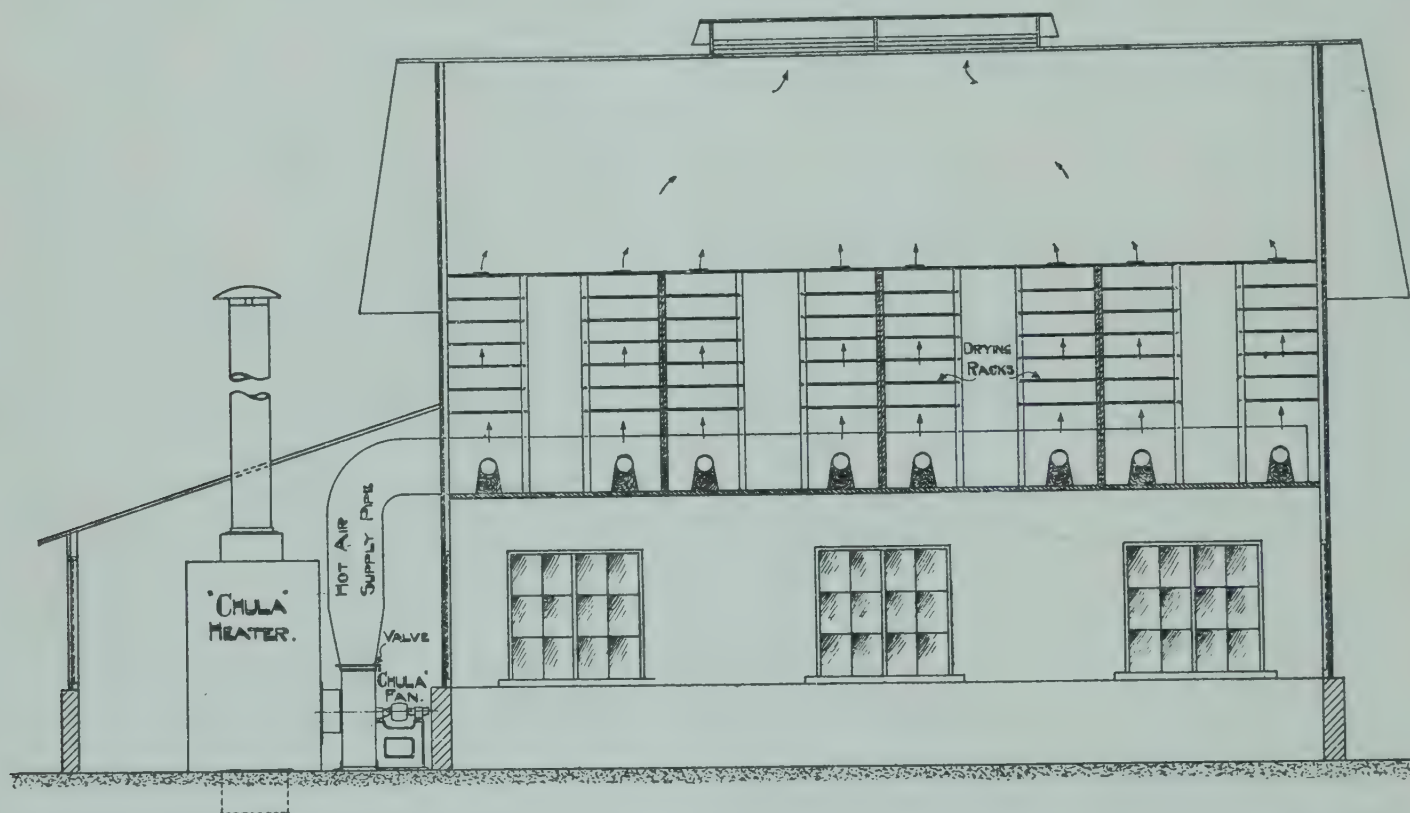
* Reprinted from the Philippine *Agricultural Review*, in which Mr. P. J. Wester discusses at length in a special article, "The Coconut—its Culture and Uses." We reprint in full this portion of Mr. Wester's excellent article, as we are anxious to keep the question of mechanical v. natural drying to the fore, and because we have much respect for what the Philippines have done and are doing in this way.

present custom of spreading the coconut meat upon the ground should be discontinued. Trays should be made of bamboo, upon which to place the meat for exposure in the sun the same as is done in drying fish. Not only would copra prepared in this way command a premium because of its cleanliness, but the handling of the meat itself from the time of placing it in the sun until sacked would be facilitated; in the case of threatening rain it would easily and rapidly be placed under shelter. Such trays might be made of any convenient size for two men to carry, one at each end of the tray. Since bamboo grows everywhere the cost of making these trays would not be great. With reasonable care they would last a long time, and they could be made by the producer himself at a very low initial cost. A tray 2 by 1 metre is suggested as a suitable and convenient size. As these trays, filled with coconut meat, are placed in the sun for drying they should not be spread upon the

installation of an artificial dryer if, as should be, he desires to produce a high-grade copra. The statements that will presently be given relative to cost of installation, operation, and capacity will enable the large grower to decide as to what dryer would be best adapted to his special needs.

In the case of the small planter the obvious course to pursue would be either to sell his nuts or to organize a co-operative drying enterprise.

Before breaking ground for a co-operative drying plant, a careful estimate should be made of the prospective contributory area in order to avoid waste and the installation of disproportionate machinery. The importance of this preliminary work cannot be overestimated, since the more nicely the available supply of nuts is adjusted to the full capacity of the drying plant the lower will be the operating expenses. Distance and transportation costs should be carefully considered.



COPRA DRYING HOUSE.—Designed by the Tyneside Engineering Co., Ltd., Newcastle-on-Tyne. The latest scheme is illustrated in their advertisement, page vi.

ground, but raised therefrom by the means of scantlings or bamboo upon which they are placed; this would insure clean copra, and by the better circulation of air hasten the drying. The drying ground should, of course, have a shed where the trays may be stacked in case of a sudden rain and for the storage of the dried copra. The producer will do well to keep always in mind that dry, clean copra is equivalent to top prices. The floor of the copra bins should therefore always be well raised above the ground to prevent access of water, which induces the formation of moulds. The copra should never be stored on the ground. An open, ventilated bamboo floor, not less than 50 centimetres above the ground, would serve the purpose well.

The above paragraphs refer more particularly to the small producer in those districts where sun-drying is feasible. In the largest coconut-growing areas, however, the planter must reckon on the

Modern copra dryers may be divided into two types, those where the meat is dried by means of superheated steam, and those where the meat is dried by hot air. Both types are such recent inventions that we may expect considerable modifications in the models now in use until more perfect dryers shall have been perfected.

Coconut growers that contemplate the installation of copra dryers will find the discussion of them in "Coconuts, the Consols of the East," by H. Hamel Smith and F. A. G. Pape, of interest.

Probably the first steam-heated dryer was designed by Mr. O. W. Barrett, in 1911, when chief of the division of horticulture of this Bureau. This dryer, which was exhibited by the Bureau of Agriculture in 1912 at the first Philippine Exposition, was constructed of sheet-iron with asbestos lining between the iron sheets. The steam entered the dryer from the boiler in a section of pipes laid in the bottom,

above which were trays on which the halved nuts were placed.

The tests made by this dryer were quite satisfactory, considering that it was the first model constructed, and was put into operation without any preliminary test. The model was a small one only, but it was estimated that "a dryer constructed along similar lines with reinforced concrete walls, boiler and accessories complete, having a capacity of 15,000 nuts per twenty-four hours, can be constructed for approximately pesos 2,500." This dryer turned out dry copra in fifteen hours.

(To be continued.)

Progress since the War in the Nyasaland Protectorate.

THE following remarks, based on the Annual Report issued at Zomba by Mr. J. Stewart McCall, as head of the Nyasaland Department of Agriculture (price 6d., or 7d. post free), are worth noting:—

Towards the end of 1919 there was a great immigration of new settlers from England, either independently or under the auspices of the British Central Africa Company, who evolved a private scheme for the settlement of overseas officers. At the present time the planting community is certainly more than double what it was at the commencement of the war.

In 1914, 20s. to 25s. was considered a fair price for land in the Shiré Highlands, but at present it would be difficult to purchase land within a radius of thirty miles of the existing railway under 60s. an acre. Several of the older planters have disposed of their properties and retired from planting after a residence of some twenty years in Nyasaland, and the country is now full of new settlers with new ideas. This may affect the local labour supplies, especially with the time approaching to carry out the work which will connect Beira with Nyasaland by railway.

Mr. McCall confirms what we have heard, possibly not, unfortunately, for the last time, that new settlers must take greater care in the selection of their estates, as there is a dangerous tendency to rush in and take up land irrespective of situation or price and without taking into account that prices being paid are abnormally high; also in future, whilst these values will drop (and the price of the produce has dropped) heavily, the cost of labour, for reasons stated above, is likely to advance. Upwards of 50,000 acres of land in the neighbourhood of the Shiré Highland Railway have been applied for during the past six months.

Whilst those who are not careful enough may leave the country complaining, results obtained by the hard-working industrious settlers, for which Central Africa has become famous, show that few countries offer such prospects as Nyasaland, provided sufficient capital is available. Agriculture in these tropical or sub-tropical areas is, as elsewhere, somewhat speculative, but the newcomers will find it wise to follow the local practice of established and experienced planters (even if, as they learn the work, they think fit to try newer methods), for these pioneers, after fighting disappointment in many shapes and forms, can to-day point to

a tobacco and cotton industry of which they and the Colony generally can well be proud.

Tobacco is undoubtedly the most important industry and has a bright future; but to achieve success careful cultivation, curing and grading are absolutely necessary, as those who tried to work on other lines have learnt to their cost, in spite of the "rush" prices recently paid (1s. to 1s. 8d. lb., as compared with 4d. and 6d.). Also the newcomer will be wise to keep well within the limits of his available capital and experience, and not attempt more than he can easily manage, especially whilst new to the country.

Cotton to the tune of 8,655 bales, or 3,462,000 lb., was produced in 1916. Since then, owing to the war, this industry had to take a back seat, and the high prices paid for tobacco also helped reduce the area to be planted; but there are, it would seem, great possibilities for cotton in Nyasaland, where surely, following on the lines adopted in Arizona, a long-staple cotton suitable for tyre-fabric could be evolved and sold in competition with Egyptian sakel produced north of the Shiré area.

Regarding the native cotton-growing industry, we notice that Mr. McCall echoes or emphasizes our complaints that, compared with prices ruling generally, "rings" were formed, whereby the Government minimum became the maximum, and the native producers were thus deprived of the full benefit of the rise in price.

One wonders why no mention was made in this report of coffee or rubber. Taking the Protectorate as a whole, areas and outputs amounted to the following, during the year ending December 31st, 1919, out of the total acreage—47,781 acres—under cultivation.

					Acres			Crop
Cotton (Lint)	...	...	...	...	12,658	...	...	5,329
Tobacco	...	...	...	...	9,817	...	...	35,691
Maize	...	...	...	...	9,901	...	...	69,755
Tea	...	...	...	...	4,840	...	...	5,984
Coffee	...	...	...	...	492	...	...	348
Sisal	...	...	...	...	3,290	...	...	4,276
Ceara Rubber	...	...	...	...	3,500	...	...	2,171
Hevea	...	...	...	...	500	...	...	70,091

(Continued from p. 24.)

supplies of this fuel to become exhausted, we know of several men who are turning longing eyes to Colombia as a producer of mineral oil, whilst others are actually prospecting for it over there. On this account the section in the first number of the *Review*, which Mr. Medina edits, that is certain to attract attention is Part I of the law concerning the exploration and development of the (oil) industry over there, the importance of which having been realized by the Congress at Bogota, a Bill was passed dealing fairly with all parties interested in its development. There is also a Spanish section to give the readers in Colombia information of ourselves and the openings for trade throughout the Empire. We wish "Our Friend" and those working with him every success. We feel sure that such work will greatly benefit both Colombia and ourselves.



Tropical Life "Friend."—No. 188.

MR. JOSE MEDINA.

Director (in London) of the Colombian Bureau of Information and Trade Propaganda.

AN article in a recent issue of the (London) *Confectionery Journal* discusses (of all subjects in the world) whether Guayaquil cacao is inclined to become out-of-date like the Panama Canal. In this the writer suggests that after the U.S.A. having "borrowed" the strip of land, known to-day as Panama, from Colombia, to which it belongs, a sea-level canal may yet have to be cut further south, through what still remains as Colombian territory. At the time that the Panama Canal was opened we published an article, accompanied with a plan showing how such a canal—which it was then claimed would one day have to be cut—could be planned. Now that leading men and papers are openly expressing doubts as to whether the Panama Canal can continue to be considered as a commercial success we like to remember this article.

All this should be taken note of and borne in mind by those interested in the progress of South America and, in particular, the economic development of its north-west Republic, Colombia. What a country this could be made if developed even to 50 per cent. of its possibilities! The day that the world wakes up and declares that a new sea-level canal must be cut, and that through Colombia, then will that Republic (which has been neglected too long by financiers and settlers) indeed start to come into its own.

Meanwhile, realizing the future that lies ahead of this Republic, wise men in Bogota and Medellin, as well as in Cartagena and Santa Marta, &c., have been taking steps for some years past, first, to take stock of their country, and then to publish the reports con-

cerning this stock-taking, so that men and money could be attracted to Colombia, knowing that a fair profit awaits them, so long as steady work and experience are put forth to secure it.

Ever since TROPICAL LIFE has been running, and even before (for we used to contribute articles in collaboration with Mr. Gutierrez, the Consul for Colombia at Southampton, when President Reyes was at the head of affairs) we have called attention to Colombia and its advantages for cattle-raising, coffee-planting, and especially for producing some of the finest Criollo cacao known. To-day cattle-raising and coffee are much to the fore, but for fine cacao—well, the least said the better; but then, as the reports published show, there are many other crops and industries to take the place of cacao if no one is willing to increase the area and production of choice cocoa in these democratic days.

Mr. M. T. Dawe, it may be remembered, was recently placed in charge of the Department of Agriculture, and it was in this official capacity that he undertook his two journeys. The first, in August, 1916, through the Magdalena Province and the Peninsula of Goajira; and the second, in October, 1918, through the western portion of Colombia, from Tolima to the Pacific Coast, through the Departments of Caldas and El Valle. It was through these journeys—and Mr. Dawe—that we had the pleasure of meeting "Our Friend" for this month.

As Director of the Colombian Bureau of Information and Trade Propaganda in London, Mr. Medina is filling a long-felt want on the part of those who had confidence in his country and wanted to see it take its place among the producing centres of the world, and in doing so, therefore, to enable it in return to receive machinery and manufactured goods. Well equipped for the task, with great knowledge of his country and its crops, Mr. Medina (an engineer by profession, who was trained in Liverpool and has practised in the United States and Colombia) at once arranged to publish an organ to advance the work he has in hand. This is the *Colombian Trade Review*, price 1s., and those wishing to obtain a copy have only to send the necessary remittance to the head office of the Bureau, at No. 7, Sicilian Avenue, Southampton Row, W.C.1, when a copy will be sent, so long as there are any to spare. Judging by the way that the first number has been used up, this publication promises to enjoy a widespread and influential circulation. Copies of Mr. Dawe's second report—price 1s. 6d., or 1s. 8d. post free—can also be obtained from Mr. Medina, but whether any copies remain on hand of the first report is more than we can say. Still you never know your luck until you have tried.

Married to an English lady, we believe Mr. Medina is suited to his task for several reasons. He knows the market he is out "to tap" very well. He knows the United States also, and has good knowledge of Paris and its business habits and ways. He is sure of what he says, and so speaks with decision, an enormous advantage for those seeking information and also for the work he has in hand, as it inspires confidence, and without that progress cannot be looked for.

With the high cost of coal and the tendency for

(Continued on p. 23.)

Business Notices.

1.—The address of **TROPICAL LIFE** is Messrs. BALE, SONS AND DANIELSSON, Ltd., 83-91, Great Titchfield Street, London, W.

2.—All literary communications should be addressed to the Editor, and accompanied by the necessary stamps for their return if not accepted.

3.—All business communications and payments, either for subscriptions or advertisements, should be sent to the Publishers of **TROPICAL LIFE**. Cheques to be crossed The Union of London and Smiths Bank, Ltd.

4.—The Subscription, which is **Twenty Shillings** per annum, may commence at any time, and is payable in advance. Life Subscription, £10.

5.—The Advertisement Department is at 112, Fenchurch Street, E.C., where all inquiries respecting advertisements, charges, &c., should be addressed c/o the Manager of the Department. At the same time will advertisers kindly note that all copy and blocks for advertisements must be sent to 112, Fenchurch Street, E.C., before the thirteenth of each month, failing which, insertion of same in current month cannot be guaranteed.

6.—The Publishers reserve the right of refusing any advertisement, or the matter or "copy" sent in for any advertisement. They would also be glad if advertisers would refrain from using the "powerful" or extra heavy type that some adopt at times. Doing so renders the paper unsightly, and is unfair to the other advertisers as well as to ourselves. If all used such type, no one would benefit; to allow some to do so and not others, would be unfair.

7.—Advertisers are only entitled to three changes of matter in the year, of twelve issues, unless (1) they send electros for insertion, or (2) are willing to pay for the cost of setting up the advertisement. Owing to present high cost of composition and printing work we cannot depart from this rule.

8.—Changes of address should be promptly notified.

9.—Non-receipt of copies of the Journal should be notified to the Publishers.

10.—The Journal will be issued on or about the twentieth of the month.

The Managing Director and Editor of "**Tropical Life**" will be pleased to consider the printing and publishing of useful technical works on Tropical Agriculture, Medicine, or other subjects dealing with the development of our Colonies and the Tropics generally, as well as similar books dealing with Russia, Japan and the East, whether the books are to be published in English or other languages.

Tropical Life.

FEBRUARY, 1921.

The Future of the West Indies.

THE SECRETARY OF THE W.I. COMMITTEE GIVES HIS VIEWS.

THE slump in the price of cacao and sugar makes the paper read by Mr. A. E. Aspinall, C.M.C. (recently returned from an exhaustive tour through the islands), before the Bristol Branch of the Royal Colonial Institute on January 17th very timely. Whatever money the islands may have made since the war started, no one can deny that they are feeling the pinch now, with considerable uncertainty as to what the future holds in store for them.

During the war, besides money and men, sugar and cacao, the islands helped to supply rum for the troops, Sea Island cotton (the best of all) for the wings of the aeroplanes, and mahogany for their propellers, whilst their lime-juice and mineral oil supplies were

also welcomed and appreciated. "The present swing of the pendulum from high prices was inevitable," Mr. Aspinall pointed out, "but the present economic position of the British West Indies may be regarded as sound, the opportunity of recent high prices having been taken to pay off mortgages and to help develop production on modern lines, the only danger spots having been where estates have changed hands at absurdly exaggerated values.

"The most notable steps in the direction of production on modern lines have been taken in connection with the sugar industry, which is being further developed by the extension of the central factory system whereby the canes from the surrounding estates, as well as those grown by peasant farmers, are dealt with at a central base, the concentration thus effected permitting of the installation of machinery by which the maximum amount of sugar can be extracted from the cane at a low cost of production.

"Thanks to the devoted care given to cultivation and to the assistance of local agricultural scientists, who make it their constant aim to combat insect pests, the cacao industry, which is mainly centred in Trinidad and Grenada, should continue to flourish and to benefit from the further increase in the world's consumption which is certain to take place when something approaching normal conditions are resumed in Europe—and the Russians, for example, can hardly be expected to buy cacao whilst they are standing on their heads. The production of cacao in the West Indies is now dwarfed by that of the Gold Coast, which has developed at a phenomenal rate in recent years; but the superior quality of the Trinidad and Grenada varieties should secure for them supremacy for many a long year.¹

"Coming now to fruit, the great banana industry of Jamaica has made rapid recovery from a succession of hurricanes from which it suffered in the early years of the war and should continue to make satisfactory progress, although it is probable that some banana lands will be devoted to the production of sugar if prices warrant it—and it is in Jamaica that I look for the greatest development in sugar production as far as the West Indian Colonies are concerned; whilst another industry capable of great development is that of the production of oranges. This fruit grows prolifically throughout the West Indies, but owing to the prohibitive duties to which it is subject in the United States and to the absence of facilities for shipment to Canada and the United Kingdom it has been dying of atrophy.

"The cultivation and shipment of limes, on the other hand, form the staple industry of Dominica and Montserrat, an advantage which it enjoys being that the product of the lime can be shipped in eight different forms, namely: concentrated lime-juice, raw lime juice, raw juice cordial, green limes, pickled limes, citrate of lime, essential oil of limes and otto of limes.

"In view of the continued reduction of the area under sea island cotton in America owing to the

¹ On this point some notes from a correspondent in the *Economist* of February 19th, p. 358, are of interest as they call attention to the aggressive competition of Accra cocoa which is causing the future of the better class West Indian to be none too sure.—[Ed. T.L.]

ravages of the Boll-weevil the sea island cotton industry, which was established in Barbados, St. Vincent, St. Kitts and Montserrat in 1902, should continue to prosper, provided it can be kept free from the weevil, which, unfortunately, has recently made its appearance in the two last named Colonies. It may be noted that at the present time the island of St. Vincent produces the finest sea island cotton in the world, whilst a shorter stapled variety, known as Marie Galante cotton, is produced in the island of Carriacou."

Mr. Aspinall also called attention to another comparatively young industry which has a great future before it, that is of rice, the production of which has been developing at an astonishing rate in British Guiana, thanks to the thrifty East Indians, who form nearly one-half of the community. Last September we were able to show official returns (thanks to Professor Harrison, who had them sent to us) of the production and exports of rice over in British Guiana, which we hope our readers will refer to and note their wonderful progress.

To the above we are glad to be able to add that progress is being made with the Agricultural College to be established in Trinidad (see our leading article last September, p. 137). The Government has arranged for £25,000 of the £50,000 promised, to be immediately available so that the buildings can be erected on the site chosen. At the time this, the situation, was favourably commented on, but subsequent opinions more than confirm the original views as to the suitability of the site and situation generally that has been chosen.

Economic Zoology.—No. 1.

Our Motto: "Utilization not Extermination."

THE CONTROVERSY ON THE USE OF TROPICAL BIRD PLUMAGE FOR MILLINERY.

RECENTLY we were pleased to receive a letter from the Chamber of Commerce of Caracas (Venezuela), thanking us for our efforts to further the protection of egrets and other tropical birds by practical methods and especially by interesting the public on this side in their skins and feathers for personal wear. We have lived long enough in this world to be aware of the fact that if you wish to remain in it you must be of it, i.e., take a useful part in its work and play, its pains and pleasures; otherwise, be you ever so attractive, unless you are of use in some form or the other to someone, no one will heed you because they do not need you. Then you soon find yourself pushed aside, ignored and forgotten; you simply do not exist, and when you die no one notices you have gone.

Never was this the case as much as it is to-day, and since this is so with "humans" in the big cities and centres of population, it is twenty times more so with the avi-fauna buried away in the forests and swamps of the tropics which, but for occasional unfortunate specimens captured and imprisoned in a "Zoo," for the cause of science, are unknown to the public on this side.

No bird is so likely to go out of existence through the mistaken would-be kindness of a few people as the egret. Those who know the birds in the tropics, let us say in India, as Douglas Dewar or Frank Finn do, will agree with us (they have, in fact, already done so) when we claim that the progress of the world means slow but sure extermination to the egret unless we can find a use for them through their feathers that will induce the public to take enough interest in these birds to support *garceros* or osprey farms on a large scale and pay for the cost of doing so by the sale of the birds' plumes.

The only opponents to this plan are those extremists who, like fanatical teetotalers, will allow no reasonable temperance proposals to be tolerated. These folks have made America the laughing-stock of the world, firstly, by refusing to allow any tropical bird-plumage to be worn; and secondly, by refusing to allow any intoxicants to exist within the United States—by law. One day, before long, the reaction will come to America, and then indeed the last stage of that mistaken country will be worse than the first. Meanwhile all they have done in theory to protect the birds is doing and has done nothing to prevent them being killed.

And so it would be with egrets and other tropical birds generally were the whole world to do as America has done. They will, however, be preserved to some extent from extermination, whatever final decision the U.K. and the U.S.A. may ultimately arrive at, because the trade can be and will be carried on elsewhere in countries where people, wiser in their ideas, will take steps to protect the birds by interesting the public in them. They mean to do so because both the trade and the public know quite well—although the anti-traders will not agree that it is—that if they do not look after the welfare of their "raw material" it will disappear and the trade cease. The most rabid extremist against the trade cannot be more anxious than those who need the birds must always be to see that they not only are kept from becoming rare, but that every precaution be taken, once the trade is put on a sound basis, to see that the numbers of the birds increase as quickly as possible.

Unless something of the sort is done, and unless the public are encouraged to continue to take an interest in the birds by requiring their feathers as a raw material in the first place, and as trimming or an ornament later on, the days of these and many other birds will soon be numbered. Horses are rapidly decreasing in number, as mechanical transport is driving them off the field on all sides. Were it not for wars their numbers would be far less than at present. The same with sheep but for their wool and flesh, with cattle for meat, hides or as draught animals. Let any such useful beast of to-day be supplanted and you will find the species become extinct, helped along by the collector of rarities and those who stock our museums.

The *Boletin de la Camara de le Comercio de Caracas* (September 15th, 1920, Year lx, No. 82) published an excellent article on the osprey and its plumes (*La Pluma de Garza*) and how the supply is being safeguarded over there. Judging by the reception offered to our Editor by some of those who took part in the

debate at the Lyceum Club a little time back, when he opposed Miss Cicely Hamilton's proposal to support a Bill then before Parliament to stop the use of birds' skins and feathers for millinery or other trade purposes, we shall be told that these statements, although written by men in Venezuela and those experienced in *garçero* work, are unreliable if not actually untrue.

This claim (of untruthfulness) seems to be the one and only argument of the "Antis" against the "Pros," who have had a lifelong experience of the tropics and their birds. And hitherto it has been successful, and one cannot help feeling that if ever a Bill becomes law and prevents tropical birds and feathers from being used as raw material or even to be imported into the U.K., it will not be on account of its merits, i.e., because of the truthfulness and justice of the pleading, but purely on account of the influence of those behind the Bill. It would be a typical case of might over right, and for this reason alone, as well as for all the others, we hope that everyone will oppose the few very influential people (who keep in the background but who possess the influence) without whose help no legislation against the economic use of birds' skins and feathers can be successful.

One day perhaps, when the leaders of men who know the tropics and their wild life have the management of the Empire, they will be willing to listen to both sides of the case put forward, first to protect the birds, and later further to increase their numbers, and will insist that the case of the "Pros," as well as that of the "Antis," be heard, and having been heard, will see that both statements shall be examined by impartial men and all hearsay eliminated. If a Bill based on such sifted evidence were then brought before the House of Commons it might run some chance of becoming law, since, for the first time, it would be based on right, and not merely on the might of influence; and, still more important, it would be built up on experience and not on blind prejudice.

(To be continued.)

"As we look on the graves of the men who gave their lives in the Ashanti War of 1875 (or, maybe, the more recent one in 1900) to keep the old flag flying, as we stand by the well to which the besieging hordes of Ashantis gallantly allowed our besieged fellow-countrymen to go unmolested to fetch water. . . ." So writes Miss Edith A. Browne in "Her Peeps at Cocoa" (p. 59), reminding us that these Ashantis—most savage of savages—could wage war more decently than recent fanatics for *Kultur* have done. They too allowed us to have access to water—after they had poisoned it; and yet those who think this is the way to fight claim, we believe, to be classed as a civilized people, and exterminated the Hereros, or tried to do so, because they did not agree with their views on how to live. Next month we shall have more to say concerning this book, which is published by Messrs. A. and C. Black, Ltd., and costs 3s. net. It deals mainly with the Gold Coast, on which account we have already recommended a good many people interested in that colony to buy a copy, and they have been glad that they did so.

Vegetable Oil Notes.

WHAT ARE FRYING OILS MADE OF?

WHY have frying oils been so dear? Which oils go to make up the best qualities one would like to know? We tried to "pump" a big refiner and dealer of such oils near Houndsditch—needless to say he was a Jew—but got nothing out of him concerning the blends and not much about the price except this—oil that in the early days of the war cost 6s. per gallon or a little more touched 25s. before the turn came, and even now stands at 16s. How does this compare to the producer in the tropics with the average price of such oils as one imagines and certainly hopes go to make up the frying oils of London and elsewhere, which in the aggregate would make quite a small river were it possible for a year's consumption to be turned out "on the flow" at the same time?

THE PRICE OF SOAP.

Here is another article over which the public are kicking because of the price, and the papers have taken up the cry as well. Maybe, as with chocolates and cocoa powder, the comparatively small amount of advertising now obtainable from the big firms may have turned the press against them, but certainly the recent campaign against common soap at 10d. or 11d. per lb. is justified both on account of the consumers over here as well as in the interests of the producers abroad, whose produce cannot sell as freely as would be the case were prices—for everything—on a more reasonable basis in comparison with the spending capacity of the masses and not that of the few, who, being in work can, thanks to their trade organizations, ask and obtain excessive wages, and so hold up the welfare of the world for their own selfish ends. It is hard to know where the real fault lies, in the combination of capitalists or of labour. But to the out-of-work here and to the producer abroad the situation is intolerable. Instead of two or three men obtaining a fair wage and being able to buy the necessities of life at a fair profit to all concerned—producer, manufacturer, distributor and transport concerns—it goes into the pocket of one man, whom the capitalist urges does less work for this unfair wages, and so he—the manufacturer—must put up his rates doubly high, first to pay for the increased wage, and then to allow for the smaller output. Thus it has come about that the world is flooded with all the good things of the earth that millions are starving for the want of (20,000,000 in China and how many in Europe) and thousands need badly, and thus it happens that whilst people need houses, no one can build them because those in the Unions work too slow and no one else is allowed to help. Lack of comfort and inability to settle down are alone holding up the trade of the world, and if five-tenths of this trouble does not lie at the door of organized labour in England and America, and three-tenths at the door of the manufacturers and distributors, more anxious to avoid a loss than to prevent people from starving, one would like to know where it does lie.

AN AMERICAN PAPER ON THE SLUMP.

Vegetable oils, ordinary butter, rubber, cacao, sugar,

cotton, wheat, maize, coffee, &c., all are the same, and the *Pan-American Magazine* puts the case very pointedly in the opening paragraph of the February issue just to hand, where it warns farmers against being too greedy by showing what happened to the Cuban sugar-ring. Here the *P.-A.M.* directly charges the American farmers with working to keep the butter (or other food) from the mouths of the public through the over-high cost if protected against Danish and other kinds as they wish it to be. "The sugar refineries managed to make sugar so high," they tell their readers, "that people learned to go without . . . perhaps they will learn to go without butter," and a good many other things we would add. People still go slow with matches, so used have they become to have hardly any at all.

THE LONDON TRADE JOURNAL "MARGARINE."

The question of butter *v.* margarine, of course, directly affects coconut estates, as well as exporters of cottonseed, ground-nuts, &c., or their oil. For this reason we would wish that the London trade journal *Margarine* (published by Messrs. Griffith and Co., 45-46, Avenue Chambers, Vernon Place, Southampton Row, W.C., subscription half-a-guinea a year post free), were better known throughout all vegetable oil areas, and especially in the big coconut centres, India, Ceylon, the South Seas, Philippines, &c. We, i.e., all keen on vegetable oils and margarine, soap, &c., made from them, are in for a tough time as things settle down and butter becomes more reasonable in price, say 2s. per lb. even against 9d. to 1s. for good margarine. At present they stand at 2s. 8d. and 1s. 6d. respectively, with 1s. 2d. per lb. for the all-vegetable-oil margarine; but, asks *Margarine* (the trade journal), can the British margarine industry hope to maintain its own at present prices, with no effort made to remove present criticisms (on its consistency, colour, &c., which tend to vary needlessly, especially the popular kinds now at 10d. to 1s. per lb., *Ed.*, *T.L.*) . . . will margarine be able to hold its own against butter at 2s. 6d. and even 2s. per lb.? If it does not there will be a big slump in copra and vegetable oils. Yet I have met no tropical man who seems to know this trade paper fighting to maintain (possibly their circulation, but on that account) the importance of margarine as a foodstuff and help it to be a large absorber of coconut oil, &c. Let margarine drop to pre-war levels of popularity, both here and in America, and then see how coconut men will fare at the hands of the soap trade when that magnificent industry is no longer up against margarine as a competing buyer of raw materials. The future of vegetable oil has arrived at a critical stage in its life-history, and at the moment it looks as though it will have a nasty knock, because the average estate owner or exporter abroad has not taken the trouble to realize how the "hold-up" in butter, unfair as it has been to the public, has helped margarine to come to the fore, where we want it to remain. We, however, cannot devote the room we should like to to the subject, so strongly recommend our readers to subscribe to the London trade journal as well as to those in America and elsewhere, if such papers are published. Unless the vegetable-oil men

abroad start doing so, they will not be *au fait* with what is going on, and so find that the cream of their trade has gone without their knowing it.

The market as we go to press has moved upwards and remains high if unsettled. As much as £35 5s. was spoken of for F.M.S., but this extreme seems to have been left behind, and we quote as follows:—

FEBRUARY VALUES.

COPRA PER TON—SPOT.

		London		Ceylon		Marseilles		Hamburg and Rotterdam.	
		F.M.S.				F.M.		F.M.S.	
		£	s. d.	£	s. d.	£	s.	£	s.
Feb. 19	...	33	10 0	to 34	0 0	34	15	31	10
" 16	...	33	10 0	"	34 5 0	34	10	32	0
" 14	...	32	5 0	"	32 10 0	33	10	31	0
" 10	...	31	10 0	"	32 0 0	33	5	31	0
" 3	...	31	5 0	"	31 10 0	32	5	31	0

COCONUT OIL PER TON.

		Spot		Ceylon For shipment		Spot		Cochin For shipment	
		£	s.	£	s.	£	s.	£	s.
Feb. 19	...	60	0	...	54 0	...	N/Q	...	60 0
" 16	...	60	0	...	54 0	...	N/Q	...	60 0
" 14	...	60	0	...	54 0	...	N/Q	...	60 0
" 10	...	60	0	...	54 0	...	N/Q	...	72 0
" 3	...	62	0	...	55 0	...	80 0	...	59 0

OTHER OILS PER TON.

		Castor Firsts		Ground-nut Crude†		Palm kernel Crude Hull spot		Cotton seed Crude Egypt	
		£		£		£		£	
Feb. 19	...	43	...	40	...	47 10	...	31	...
" 16	...	43	...	37	...	N/Q	...	31	...
" 14	...	43	...	37	...	N/Q	...	31	...
" 10	...	44	...	37	...	N/Q	...	31	...
" 3	...	45	...	37	...	N/Q	...	27	...

* Rotterdam only. Hamburg not quoted. † English crushed, naked.
N/Q—No quotations.

"Tropical Life" at the Play.

PERFORMANCES of "Omar Khayyam," with the music by Liza Lehmann, from "In a Persian Garden," are being given at the Philharmonic Hall, close by our publishing offices, and will continue for some time. There are few who do not find the music and the whole idea of this Oriental phantasy pleasant, because it is restful to listen to and seems to awaken the imagination to so much that is exactly the opposite to the hum-drum things of this more Western metropolis. Our best thanks, therefore, go to Mr. Stuart Robertson (bass) as a Sultan, we liked his voice and singing immensely; also to Mr. J. Fisher White as Omar. Miss Molly Keogh was a Hunter of the East (the première danseuse), whilst the dances generally were arranged by Miss Dorothy Shearwood, who has had considerable experience in these matters and would be an acquisition, we should imagine, if she could be suitably "placed" in London permanently instead of giving up so much of her time to the fringe of the West End.

We were very pleased to see Mr. Cyril Maude and Miss Connie Ediss again, it is some time since we met. They give no signs of being a day older. Like the tropics, there must be something amazingly healthy about the theatre—to some folks. If you doubt this,

call in at the Criterion and see these two in "Lord Richard in the Pantry"—unless it hurts you to laugh, for in that case you will suffer considerably, especially when the kitchen wench (Miss Nellie Bowman) starts her "sweet smiles"; you wonder where she gets all her mouth from so suddenly, since it looks quite small in her photographs on the walls in the theatre. Miss Grace Lane as Sylvia Gayford was pleasant to watch on the stage. Comparisons are always odious, especially between actresses, otherwise we would suggest that Miss Lane reminded us of Miss Ellis Jefferies, and we have no higher praise to offer.

The Modern Plough.

THE Y.C.P.W. Plough, manufactured by Messrs. Ransomes, Sims and Jefferies, Ltd., of Ipswich, is extremely well known, and has had altogether rather a remarkable history. So long ago as 1848, this plough was shown in the firm's catalogue, whilst in 1854, in a subsequent edition of the same catalogue, it is mentioned that the plough was at that time in general use in the West Indies, Cape of Good Hope and United States, and the demand for it since its introduction has been continuous. During the war, when Messrs. Ransomes worked under great pressure to produce ploughs and implements for home use, they were compelled to discontinue the manufacture of this particular implement, and could only offer West Indian buyers one of their other patterns in its place. This, however, was not a success, and at the request of a large number of buyers they have since made arrangements to keep the Y.C.P.W. plough in permanent production and to supply orders promptly. At the same time the plough has been perfected with one or two up-to-date details.

A study of it to anyone with a knowledge of the conditions under which it is used in the West Indies reveals several interesting and important features. The beam of the plough is of steel, and is built on the firm's well-known trussed principle, which, with a minimum of weight, gives very great strength and solidity. The junction of the beam with the ploughing body is very high to enable deep ploughing, and also in order to give sufficient clearance when dealing with land containing much rough herbage. The body is built on a wrought steel frame, and without being cumbersome is of specially solid construction; it is provided with a deep steel breast of considerable size, designed particularly to bank or lay up earth for large trenches, as well as for close or ordinary ploughing. The share is of wrought steel, and the hake or draught head has an exceptionally wide adjustment both vertically and horizontally, which, with the well-proportioned beam and handles, makes the plough comparatively light and easy to handle. The coulter has a round stalk attached to a bracket inside the trussed beam, which permits its being adjusted in all directions. A new feature is the headwheel, the centre of which is entirely dirt proof, and the wheel is grease lubricated. Speaking generally, the plough is a very strong, durable, useful implement, simple and easy to handle, and of comparatively light draught.

THE photographs might have been reproduced more plainly as they are distinctly useful, and the paper used is not so bad; but, well printed or not, we have to thank Mr. Cunliffe, of the Chilean Nitrate Committee in Trinidad, for his Tropical Agricultural Calendar for 1921. The information contained at the back of each month is very useful and does not interfere with the bold numbers on the front of the page showing the dates for each month. Except a tear-off block from Messrs. W. Wesson and Co., Ltd., the well-known iron and steel manufacturers of Moxley, Wednesbury, this is the only calendar we have received. Times may be hard, but evidently the hearts of the senders of calendars are in keeping with the times and a little over.

Trade, Politics and Finance.

THE affairs of the world, and especially of the slump in its markets, have been so fully discussed throughout this issue that there is little more to be said, or, if so, no room to say it. With the heavy Budget that we are assured is hanging over our heads one wants to see things moving; even in America the rate of progress does not seem entirely satisfactory.

Exchanges are better than they were, but the sovereign still only buys 16s. worth of goods in America, whilst France has to send us £2 2s. 7d. in francs for every £ value of goods she takes from us or 16s. of goods from America. Against this poor Italy has to send £4 4s. 3d. and Brussels 40s. 9d. Those, therefore, selling to these countries, either direct or through the United Kingdom, must remember this and realize why sales are so slow. The money market keeps saying that the London Bank Rate will be lowered, maybe they will prove correct if they keep on saying so long enough.

It is to be hoped that progress will be made to help Mexico get settled and go ahead, also to link up and facilitate transport, for passengers and goods, throughout Brazil, before the Germans or the ever-busy hyphenated Americans cause this to be done.

The United Kingdom has plenty of debts to settle up, and this being so, since more money can be made out of Latin America to-day than out of any other continent—by those who understand these Republics and their people—it is to be hoped that this country will do all it can to obtain their share. For this reason we beg to call attention to "Our Friend" this month. Colombia and its sister republic Venezuela have more easily accessible riches stored away over their surfaces than even Brazil, they have not the unrest of Mexico, nor the dreariness of the Pacific border of Peru and Chili, and so let us hope that here also financiers and ex-warriors, &c.—i.e., capital and labour—will devote money and enterprise on the lines laid down in our book "How to Pay for the War." To think that men are crying out for work and food and lodgings in this country when such areas are starving for their help is one of those double tragedies that one often talks about, but never believed would come to pass with the force that is the case at present.

Coming to market reports, other than rubber,

vegetable oils and cocoa, which are discussed in their own section, fine teas and coffees are wanted, but not the commoner grades. As with cocoa, the export demand for coffee is disappointing. The Brazilian receipts to date work out at 9,326,000 bags against 4,984,000 last year and 6,193,000 in 1919. Prices realized include good to fine Nairobi at 67s. 6d. to 77s. 6d., low middling to middling greenish 70s. to 84s. 6d., good middling 87s. to 91s., fine 121s. to 126s. 6d., and peaberry 75s. to 127s. Good Uganda went at 81s., fine 96s., peaberry up to 95s. 6d. Peaberry Costa Rica touched 200s., and fine blue realized 143s. to 154s., whilst with Colombian, fair to good greyish went at 83s. to 87s. 6d. There are no recent sales of Jamaicas to compare with the above. Cotton has been more erratic; it is difficult to believe all the fluctuations reported, although there is really little doubt that they have been correctly stated. Finally we come—on February 14th—to 8.52 for fully middling, which ought to put the manufactured article in the shops within reach of all, but there are no signs yet of such luck. Meanwhile, if readers will turn to p. 20, they will see how necessary it will be to popularize the demand for cotton goods if trouble is not to fall on America and other producers. An immediate and substantial cut in retail prices on a parity with the fall of the raw material can alone do this.

Sakel (Egyptian) cotton is worth about 13½d. only. Manila Hemp tends downwards, we are told; to-day it stands at £47, although £48 10s. was reached. No sisal seems to have sold around these dates. Some speak of New Zealand as selling at £50, others at £47, both seem high against Manila. Shellac is at 335s. for T.N., but much lower, 225s., and even 215s. for future delivery. A. C. Garnet spot is put at 375s. Palm Kernels are at £19 10s. spot, against £48 a year ago. Copper stands at £71 10s., or a little less, and Tin at £168 for cash.

Coming to finance, the following is a comparison of the principal points in the returns of the Bank of England at the present time and the corresponding week last year:—

February 12th.	1921	1920
Bank Bullion ...	£128 283,084	£106,273,343
Reserve of Notes ...	15,967,970	83 705,775
Private Securities ...	76,588,152	83,838,233
Notes in Circulation ...	128,989,545	89,976,685
Rate of Discount ...	7 per cent.	6 per cent
Price of 2½% Consols ...	47½	50½
Price of Bar Silver ..	36¼d.	84¾d.

The London Cocoa Market.£

BY THE EDITOR.

WERE anyone to write a history of the Great War and its influence on the crops and commerce of the tropics, the information available would be amazingly useful as a guide with future wars as what to do and what not to do, if you wish to recover quickly when the fighting is over.

"Needs must when the devil drives" is, of course, the great evil we are up against just now, and have been ever since 1914, when the said cause drove us to fight, but there are still degrees of acquiescence and

readiness in obeying the dictates of his Satanic Majesty on which I would like to say a few words. Put briefly, they amount to this. The greatest evil that can befall any man, and through him any country, arises from the appalling effects of what is known in the economic and financial (and also in the political and social) world as "the flat rate." Such a thing smothers all attempts to maintain and improve the quality of your wares, or even of your own ideals, for, since you get the same reward or price for poor, good, or fine grade goods, one naturally ignores the quality and goes for quantity, especially as, by putting all into the common pot and stirring them up together, you present one everlasting, even sample to the buyers. This is what they have demanded, what they prefer, and for which they agreed to pay an even flat rate, indifferent to the harm that such a policy must do to those satisfying such wants.

Nothing in the tropics has been harder hit on this account than our tea estates in India and Ceylon, and, of late, the cocoa-producing industry in the West Indies. Lack of skilled and other labour, increasing costs, urgent demands for large, spasmodic deliveries have caused with tea the plants to receive inadequate attention; manure was scarce and costly to apply, and ground culture was equally impossible. The gardens, therefore, have gone back and are still yielding large quantities of low rough teas that are not wanted, whilst buyers are "tumbling over each other" to secure any teas of decent to fine quality. No doubt the tea estates—being run by keen, up-to-date business men—are doing all they can to adjust things to what they should be; still, even that takes time and the market feels the effects. In these cases, however, one believes that those in charge of the industry are not satisfied with the present state of affairs, and will do all they can to get back to pre-war conditions. Can the same be claimed of cocoa? I fear not. Since this is so, where does the fault lie?

With cocoa, is it altogether the fault of the producer or conditions on the estates? Probably not. It may be, and possibly is, on account of the exporting firms that "collected" Trinidads or "*epoca*" Guayaquils are—as they are—very mixed, and so not suited for anyone. If you want to sell quickly in these days and to obtain good prices, keep up the quality of your beans and, above all, your grades, otherwise the price you ask is above the limit of the buyer of inferior grades, and your quality, being mixed, is below the level called for by the best firms. A good deal of nonsense has been said of Germany and its tricky ways, but with cocoa there seems but little doubt that it was the German element that started mixing the cocoa at exporting centres, and even when they had been chivvied out of Trinidad the practice still remained both to heavily clay the beans and to mix, not only the qualities of the island produce, but introduce other growths, and pass the results off as Trinidad. Fine Summer Arriba in Ecuador also seems to have gone into the "common pot" in the same way. As a result both these growths are at a discount, because what is left on hand is "no one's goods." Fine Summer Arriba or really good to fine Trinidads are the exception, however; they would find buyers with ease, unless, of course, the mania—also

partly culled from the war—of putting out one flat quality, and that a low one, is still affecting the cocoa market. Jack, we are told, claims to be the equal of any man. The public vote, composed mainly of Jack and his wife—that is, the working classes—being in the majority, confirms this. The average middle-class family, who is a step or two higher in the social scale than Jack, not being a reader, knows nothing of what is going on, and not being a member of any union, has no one to tell them. So the working classes are coming to the front, and since they cannot rise to the level of educated and cultured people, their one idea is to pull everyone down to their own, either by violence, as in Russia; by law, as in Germany; or by votes, as in England and America. Unfortunately for the planters in the tropics this equalization of all grades of culture, education and wealth in people, is being extended to the wares and foodstuffs supplied. High prices are paid for the “best of everything,” but the distributor and the shopkeeper, knowing his customer, palms off anything on hand, only taking care to keep up the price, and so—we are where we are, and the planters in the tropics and the non-unionists at home pay for the music.

To some degree, since everyone has not wasted the high rate of pay that they have been receiving of late years, the average income stands higher than it was, so of course, you may add, does the average cost of the necessities of life—much higher. For all that, I believe you will find the sales of cocoa powder and even chocolate will benefit when things settle down as compared with 1912-1913. We have got so used to inflated demands and unnaturally high prices that one has lost the power to work out comparative proportions; let me try and bring them back to you by means of the figures recently to hand from Messrs. George C. Lee and Co. To last year's I add the column for 1900. As it has been in America, so it will be in Germany and over here, as well as in France. Such increases, therefore, as compared with the past, when the masses were not as well off as they are supposed to be to-day—in America the number of persons (and therefore of those dependent on them) reported to be earning \$2,000 to \$10,000 a year has increased from 1,670,000 to 2,748,500—are a bright spot in the gloomy outlook for cocoa, sugar, and all tropical produce in the future. Only, as the *Pan-American Magazine* warns us, do let all try to pull down prices charged by the retailer, lest we go back a century when tropical foodstuffs were unknown to the masses. Even as recently as 1876 America took into consumption 22,500 bags of cocoa only, against 2,500,000 in 1919, and no doubt other products were *pro rata*.

Movements of cocoa in America, based on the New York figures of Messrs. George C. Lee and Co., given below:—

Imported—	1920 Bags	1919 Bags	1918 Bags	1900 Bags
All growths including—	2,083,619	2,655,402	2,233,754	237,692
Guayaquil	323,536	264,865	311,771	30,097
Trinidad	142,111	121,516	191,477	46,497
Caracas	125,290	93,367	202,956	29,834
Bahia	414,467	557,185	440,641	40,849
Sanchez	264,597	272,944	249,509	—
Accras, etc.	640,693	1,209,312	666,810	14,082
San Thomé	84,610	13,216	Nil	

Sales for Consumption—	1920 Bags	1919 Bags	1918 Bags	1900 Bags
All growths including—	1,936,505	2,570,382	2,122,505	226,269
Guayaquil	179,896	317,784	300,569	28,101
Trinidad	161,648	117,092	154,017	44,815
Caracas	122,864	130,242	171,472	28,708
Bahia	416,850	512,501	436,515	39,477
Sanchez	241,657	229,159	245,894	—
Accras, etc.	657,266	1,165,671	663,010	15,247
San Thomé	86,781	3,957	3,957	

In 1900, Surinam can be said to have taken the place of Sanchez recently. Of this Dutch growth 27,557 bags were imported in 1900 (against 10,151 in 1920), and 28,342 delivered (against 10,533 bags last year). In 1918, however, 24,035 bags of Surinam went into America, of which 24,612 were consumed. Against this the U.K., in 1920, received 66,516 tons of Accra kinds out of our total imports of 104,282 tons, or well over half. What the final destination of the Accra cocoa has been it is impossible to say, but as America's imports last year, at 16 bags to the ton, came to 40,000 tons, it can pretty well be said that the 1920 output from the Gold Coast went one-third to America, one-third into consumption in the U.K., and the balance (except a proportion that was re-exported) into stock up at Liverpool. I have been waiting for December's exports from the Gold Coast to complete last year's figures. To the end of November the total stood 110,526 tons exported; this, with 14,081 tons shipped in December, makes 124,607 tons against an average export of 121,000 in 1919 and 1918.

I am covering too much ground, but have been obliged to do so as it is imperative for producers to realize the tendency of the world to cut down quality and increase quantity in the demand. This, I feel, is being done more than is strictly necessary. One hopes that the planters can make their influence felt to check such a tendency. All the same it will still be best to prepare your cocoa, coffee, rubber, &c., as carefully as possible, not only, or not mainly, to obtain a better price, but to secure purchasers within a reasonable time. If you do not do this, you will come up against the “all-in-the-pot” buyer, who bids on the lowest level and seems rather to prefer all Accras than a “mixed grill” of which the contents are doubtful. Maybe, if your cocoa is good to fine, you may consider the price realized comparatively low; still, so long as you get a price at all be thankful, as otherwise you may wait months before getting a buyer and lose 50 per cent. in costs and interest. It is to save this 50 per cent. that you must prepare your crop with all the care possible. It is well worth the trouble.

Now I can only give tables. Board of Trade returns of movements of cocoa in the U.K. during January. Note the serious drop in the exports:—

Raw cocoa only	Landed Tons	Del'd H.C. Tons	Exported Tons	Stock, Jan. 31st Tons
1913	4,287	2,791	750	9,900
1919	12,447	4,853	Nil	30,700
1920	8,994	5,762	6,107	38,200
1921	7,441	4,222	1,517	53,050
Decr. 1,553 Decr. 1,540 Decr. 4,590 Incr. 14,850				

Havre and London both continue to show lower stocks, so does Lisbon. Here are the figures:—

<i>Havre, Jan. 31st</i>	Stock Bags 1921	New York \$3.87 Paris Fcs. 54.95	Stock Bags 1920	New York 3.52½ Paris Fcs. 46.30
		Value Fcs.		Value Fcs.
Pará ...	9,649	155 to 170	9,162	280 to 300
Bahia ...	41,365	130 „ 162	20,038	270 „ 290
Venezuela ...	23,646	192 „ 294	16,014	298 „ 390
Trinidads ...	41,743	170 „ 175	15,026	290 „ 310
Grenada & O.W.I. ...	10	145 „ 163	3,280	270 „ 290
San Thomé ...	38,618	120 „ 153	14,587	265 „ 275
San Domingo ...	44,025	130 „ 140	62	220 „ 265
Haiti ...	36,227	100 „ 135	11,636	220 „ 250
Accras ...	27,655	132 „ 135	55,474	250 „ 260
Guayaquils ...	11,885	210 „ 230	41,269	300 „ 330
Others ...	26,332	—	2,548	—
Totals ...	301,155 bags		189,096 bags	

Lisbon, I make it, received 267,908 bags last year, against 420,921 in 1919, and delivered 319,101 against 369,732 bags. What proportion of her crop is still in the island, or where the cocoa went that was taken direct to consuming centres, I have no particulars. Here is the table for December, showing the stock on hand at the end of the year:—

<i>Lisbon Movements—</i>		Bags.	
Stock on November 30th	107,354
Landed in December	8,889
Makes	116,243
Less deliveries in December...	26,891
Leaves stock on December 31st, 1920	89,352
Against „ „ 1919	139,652

Bahia received 753,778 bags during the eight months, May-December, as compared with 536,873 in 1919 and 632,072 in 1918. Her exports totalled 637,049 against 578,166 in 1919 and 469,796 bags in 1918. Now for London and a note on values and I have done:—

<i>London Stock, February 12th</i>	1921 Bags	1920 Bags	1919 Bags	1918 Pre-war
Trinidads ...	25,829	21,578	19,881	3,079
Grenadas ...	16,719	12,966	10,975	3,087
Other W.I. ...	9,502	7,891	4,641	4,518
British African ...	10,699	16,326	36,617	8,076
Portuguese African ...	1,502	16,893	10,766	4,741
Cameroons ...	1,378	1,763	1,319	7,277
Ceylon and Java ...	21,052	9,181	11,808	12,834
Guayaquil ...	68,908	6,396	26,911	14,488
Bahia and Brazil ...	1,100	197	1,098	2,759
Other foreign ...	35,259	9,119	3,386	7,876
Totals ...	191,948	102,310	127,402	68,735

The latest news tends to give one the idea that there is more "bone" in the market, although it is not easy to say so on paper. Accra holders, for one thing, are firm; it is even reported that they will withdraw from the market—if they have not already done so—rather than press sale. If only the rubbish and undesirable parcels, accumulations of unknown months past, could be cleared out, we believe a marked change for the better would at once be noticed. We might then indeed find that this mountain lying on our chests and nearly smothering us, is but half air after all.

Later news speaks of fair fermented Accras as being 42s. instead of 39s. or 40s., but Grenadas have trouble to remain at 52s. for fine.

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A Monthly Journal devoted to the Interests of those living, trading, holding property, or otherwise interested in Tropical and Sub-Tropical Countries.

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The Coming Rubber and Tropical Exhibition and Congress.

ROYAL AGRICULTURAL HALL, JUNE 3RD TO 17TH.

(See back cover.)

THE support given to the rubber section of the above exhibition, especially by Ceylon and Malaya, promises to bring together a wonderful collection of exhibits prepared by the latest methods and to show the newest appliances for preparing the crops. As stated on p. 40, when discussing the part that Dr. Schidrowitz has played in the rubber world, this exhibition and congress will be unlike any other ever held anywhere, for it offers the first opportunity for us all to take stock of the tropical world and its products to-day as compared with 1914, and to meet the men who have been keeping things together during the seven years that will be reviewed. There is so much to be told and such excellent authorities, crammed with new experiences and ideas to tell it, so no wonder that those interested are growing impatient for the time to come.

Preparations meanwhile are going ahead to perfect the Congress. The useful paper, based on that seven years' experience mentioned above, read by Mr. J. W. McConnell before the Royal Colonial Institute on March 8th, makes you hope that so experienced an authority will be able to give us a similar paper on cotton in June. As it would be the only one, probably special arrangements could be made, as when Lord Kitchener addressed us on Egyptian Cotton in 1914. The subject, at the moment, cannot receive too much attention, and as there is to be an International Congress on Cotton in Liverpool and Manchester some time around June 22nd, it is to be hoped that the date of that meeting can be so arranged as to enable the delegates or those attending to come and see the exhibition in London and give us the benefit—at our paper on cotton—of their knowledge as well. Professor Wyndham Dunstan has always followed cotton very closely, so as Vice-President of the London Exhibition and Congress, we have no doubt that some arrangement can be arrived at with his help.

Then we come to vegetable oils and fats. It will be no use collecting and exporting these if there are no buyers. Some buyers there will always be, but not as many as we wish to see. The approaching de-control of butter and the uncertainty as to what size "mountains" of butter will be let into the, at present closed markets, makes the future of vegetable oils a little uncertain. Mr. Horace P. Bastow, who edits the trade journal, *Margarine*, tells us that he

will be represented at the exhibition, and hopes to read a paper at the Congress. This is as it should be, for butter will go below 2s. per lb., probably to 1s. 6d., and then margarine (and consequently vegetable oils) will need the help of all its friends if the demand is to increase and not shrink. For one thing, we must try and standardize the output; the constant changes in the margarine at present sold is prejudicing people against it and makes them long for butter. Of course the latter is pungent in flavour and wonderful in colour at times, but that does not matter. The world is fickle, it hates being tied up by *force majeure* to anything, and so for that reason alone it will fly to butter, and if we want an increasing market for vegetable oils we must see that this transfer of affection is not permanent.

We are urging some friends, therefore, to give us a paper on the Standardization of Vegetable Oils for Margarine making, and the important part such a policy will play in the coming struggle between margarine and butter to be first favourite for table use. We hope some such paper will be brought forward for discussion. Unfortunately the subject is widespread and very technical; at the same time it is extremely important to drive home to producers and exporters abroad the true position of vegetable oils to-day (and of course the copra and seeds from whence they come). On no occasion can this be done with greater effect than at the Agricultural Hall in June.

In the cacao section, Mr. E. J. Organ will, we hope, contribute a paper, and we expect to see Mr. Frank Evans (who has handled estates in Trinidad, Southern Nigeria and the Cameroons), Mr. Tudhope and other overseas men present and doing their part. Mr. A. W. Knapp, forsaking cacao fermentation for the moment, will discuss "Insect Pests in the Cacao Store," one of the greatest troubles where cacao accumulates and yet seldom, if ever, spoken of in public. It is also hoped that a paper will be included on up-to-date cocoa and chocolate machinery, with special reference to the advance made by English engineers during the present century. Altogether we shall have a thoroughly representative set of papers covering all sections of the various industries using tropical products as their raw material.

Meanwhile special committees are arranging about the trophies and competitions in all sections, rubber, oils, cacao, &c. If we have space we will add some details of the awards and conditions at the end of these notes, if received in time, but they are, or will be, set out in full in the *Rubber Age* (43, Essex Street, Strand, W.C.), or a line to the overseas delegate, Miss Edith A. Browne, at that address, will bring the very latest news.

CONGRATULATIONS to the *Manchester Guardian* on their Commercial Annual Review of 1920, its many tables on currency, new capital issues, fluctuations in rates of exchange in thirty-two countries, the course of wholesale prices, of exports, dividends, &c., as well as a number of charts. Published in Lancashire, the Review, of course, has much to say about India and the rupee, but it also includes in its many pages an amazing amount of information about the leading tropical and other markets. We specially noted

its remarks on Japan and the slump, also the opening article on "The Economic World in 1920," by Professor Edwin Cannan.

Economic Zoology.—No. 2.

Our motto: "Utilization not Extermination."

EGRET-REARING IN VENEZUELA.

THOSE interested in the subject of bird-life will remember that Dr. William T. Hornaday, Director of the New York Zoological Gardens, and a noted Ornithologist, wrote a book on "Our Vanishing Wild Life," with the object of demonstrating the necessity of protecting, by every means, the life of those birds supplying commercial plumage. We have never had this book to study, but were told at the time (1913) that a considerable space in it is devoted to describing the methods employed to obtain heron or egret feathers in Venezuela, and that this section was carefully noted by the *garcelero* (or heron farm) owners in the Republic.

Probably practical suggestions are contained in the book whereby those seeking to breed herons, egrets, pheasants, &c., for trade purposes are enabled to see the best lines to take when establishing their farms. The day that all parties will follow such a plan, then these and other wild birds in the tropics will run some chance of being saved from extermination; but otherwise they will continue to be killed for no reason except that they have no friends *on the spot* (where friends can alone prove of use), and, as now, their bodies will continue to rot and their feathers be wasted. On the farms, being bred for a purpose, just the opposite will take place, the birds will increase and nothing be lost.

In any case Venezuela passed a law (see their official *Gazette*, No. 13193, of June 26th, 1917) to further regulate the collection and traffic in heron or egret plumes, in which the following words occur (Article 2): "La recolección y explotación de las plumas de garzas no puede hacerse sino en los garceleros, en la época de la muda, des de julio hasta noviembre inclusive." And again, in Articles 3 and 34, it says: "Queda prohibido el procedinvento de matar las garzas para arrancarle la pluma utilizable . . . se prohíbe igualmente en toda época la caza de dichas aves, por cualquier método y en cualquier lugar." Or in English: "The collection and exploiting of osprey feathers can only take place in the *garceleros* during the moulting season, say from July to November inclusive." . . . "It is forbidden to kill the birds in order to secure the desired feathers. It is also against the law to hunt these birds in any way or in any place."

Those who know Venezuela (which has not changed so far as overbuilding and the pushing out of the cities into the *llano*, or country, since "we" were there in 1891) are aware that those districts where the egrets or ospreys abound are very keen not only to make money out of them, but to increase, year by year, the amount made. We have never met nor heard of any resident in such areas interested in osprey feathers who has not realized that if the birds are not protected, perhaps beyond the strict wording of the law, they will simply move further on and not return, and so the particular area will lose for all time the revenue they were enjoying. Nothing can keep

the birds *in situ* if they are frightened or uncomfortable, and so it goes without saying that those who want the money take care not to annoy or neglect that which gives it to them. Those who claim otherwise should go personally to Venezuela to prove their case, since all agree that the administration of the law tends to the side of harshness rather than to the lenient side against those who harm the birds to get their feathers more easily and quickly.

Not so very far from the office where these notes are being written is the former Private Secretary of ex-President Castro, now occupying an important position on the staff of one of the South American railways. From him we have learnt a good deal of how Castro managed his *garceros* away up near Colombia, where possibly he was one of those who placed the industry on an organized basis about 1884 or 1886, when the modern phrase of the traffic can be said to have commenced. About 1903 further strictures were placed on the trade, and now we understand that hunting, i.e., killing the birds, has been tabooed. To-day there is no doubt, as among game preserves in England, where birds, stags, rabbits, hares, &c., are bred to be killed as "sport," i.e., for pleasure and the amusement of seeing who can shoot the most in a given time, poaching does exist, and among the *garceros*, as elsewhere, the poacher knows no law, and gives as much trouble abroad as he does to the owners of "shootings" on this side. The authorities, however, claim to have become as clever as the poachers in "pinching" these scourges of the industry, as the poachers in the past have been in securing the birds and feathers.

(To be continued.)

THOSE of our readers who are interested in the production and export of tea at primary or producing centres must remember that, according to our latest advice, the international tea congress and exhibition will be held at Bandoeng (Java), from May 6th to 21st, 1922. The congress will be divided into ten sections, viz.: (1) Botany, zoology and chemistry; (2) Climate and soil; (3) Culture and crop; (4) Preparation, &c.; (5) Native tea culture; (6) Working policy; (7) Substitutes and adulterations; (8) Commerce; (9) Tea in Sumatra; (10) Publications.

The exhibition will show how the culture and preparation of tea is conducted in the principal producing countries, thus giving an idea how this is done in various parts of the globe.

ACCORDING to the *Canadian Gazette*, the first exhibition of foxes bred in captivity, which was promoted by the Government to encourage the industry, was recently held in Montreal. At this exhibition no less than 400 foxes were presented, all of which were pure-bred "silvers." Fox-breeding is quite a new industry, and is considered to be but a beginning for the domestication of many wild animals valued for their furs. It is possible that at the next exhibition of this kind, mink, beaver, skunk, and raccoons may be included.

Let us hope that India and Venezuela will follow this lead, and do for egrets, pheasants and other birds useful for trade purposes, what British Northern America is doing for animals and trade furs.

Rubber and Cotton Notes.

RELATIVE COST OF MOTOR v. HORSE TRANSPORT.

BOTH over here and in America, possibly elsewhere as well, considerable discussion and experimental work is being carried on to test the relative cost of transporting goods, especially for local consumption, by motor lorries or vans (with rubber tyres), as compared with horse-vans. Advocates of the latter claim that they are easily cheapest right through, if less showy than the motor. Both sides claim to know cases where the one has been given up for the other and then discarded. We hear of motors having replaced horse-vans for a time, but excessive running costs and other troubles caused the animal-drawn slower vehicle to come into favour again, and in one case quite a heavy percentage in saving was claimed. The motor enthusiast, however, denies this, and so the controversy continues. To the man, however, with rubber to sell, any cause that tends to discourage the use of rubber-tyred vehicles demands attention. The cost of repairs, of motor spirit, the license, the class of driver, all have to be set off against stabling, the cost of cleaning a horse, harness for vehicle v. motor, as well as the prime cost of the motor on the one hand, and the horse and van on the other. The number of deliveries that can be made in a day, of course—with local trade—must be considered, but then there are the out-lying areas. How does motor transport compare with the railway in the U.K., say from thirty miles out and onwards? In the Colonies we have heard that the rail is cheaper. One wonders if it is so in the U.K. at present high rates for, in that case, the rubber-tyred motor will be doubly pressed if not ousted for short distances by horse-vans and for longer ones by the railway. Smartness, no doubt, goes a long way to make the motor popular with the big stores, but is that the main cause of the large "fleets" one hears of as being used in place of horse-vans, or the railway, or is it because they are cheaper?

PUBLISHED FIGURES ON THE SUBJECT.

Since writing the above, I have received, p. 1184 (of Feb. 8th) and p. 8 (of March 3rd) of the *London Confectionery Journal*, in which figures are quoted to show where the horse-van tends to win. The first issue favours the motor which, it is claimed, "costs approximately 5d. per mile run. . . . The motor is in every sense the ideal delivery medium." On March 3rd, however, a pro-vanner says, "that to talk of 5d. a mile for running motors is absurd." The truth is, the "side lines" which beset both methods are where the actual tests of cheapness lie, and this is inclined to be minimized by both. "Does 5d. a mile include cost of the driver?" asks the pro-vanner. Of course it does not. On the other hand, the promotorist claims that horse-transport needs more space for vans and horses, say three horses if not vans, to do the work of one motor, and this means more home expenses. The pro-vanners then claim 30s. a week in favour of three vans over one motor, but the cost of running a horse-van (40s. a week) must be altogether too low since wages—so we are told—are so outrageously high, even to do no work at all. Rubber and transport men would be wise to follow the matter up and prove if they can that the rubber-tyred vehicle

will be the best in all ways. Here is an excellent chance for the Rubber Growers' Association to get busy, and see that the whole matter is fully gone into and the report drawn up in a way that will create confidence and carry conviction in the eyes of the public. We feel sure the matter deserves thorough investigation. It will do more than anything else to popularize and increase the sale of transport motors, and consequently of tyres as well, at a somewhat critical stage in their fortunes.

THE PACKING OF RUBBER.

Want of space last month, when we had so much to say about cotton in this section, prevented our calling attention to what Messrs. Lloyd, Matheson and Carritt had to say in their "Review of the Rubber Trade for 1920," on the poor packing during the past twelve months. One would have thought that this was the very last complaint to be raised when all are so anxious to attract buyers. Last October (p. 155) we called attention to faulty tea-chests and the loss they occasioned to shippers both in cash and reputation; now it is rubber cases. For how many years past have we growled over these faulty rubber-chests?

"Quite a large percentage of shipments have arrived in a broken condition," reports Messrs. L. M. and C., "and in not a few instances cases have been missing altogether. Undoubtedly most of the coverings in use at present are too flimsy. The wood is too thin and brittle. The tare is often but 11 lb. or 12 lb., yet the case has to carry a block of 200 lb. of rubber. It is hardly to be wondered at, with the rough handling a case gets *en route*, that many require considerable cooeping and often have to be entirely replaced. Such cooeping is an expensive item, and may easily add $\frac{1}{2}$ d. per lb. to the cost of the rubber. Again, many of these weak cases have arrived with a third iron-band round the centre of the package, the idea being that this will protect the rubber. This is a mistake. The nails holding the band more often than not are driven into the rubber, and before the contents can be extracted for sampling and inspection the case has frequently to be broken."

When we have urged both our tea and rubber producing friends to use Luralda and Venesta cases, they have spoken of the extra cost. Surely the cost of these safe and sure packages comes cheaper in the end than those tea-boxes complained of in our October issue and now, throughout the year, by these leading rubber-brokers. Messrs. S. Figgis and Co. also complain, and say: "We are sorry to see that quite a large percentage of the rubber has arrived in cases not sufficiently strong, which entailed fresh expense." In face of the critical times through which rubber is now passing and will have to face, so serious a drawback (and expense) as faulty cases ought not to be heard of. The loss to the shippers must in the end be far more than the cost of repairs. It must mean that the buyer, to save trouble with transport, will rather pick out the rubber in the good cases and leave the rest.

PRICES AND STOCKS.

Coming now to prices, according to Messrs. Lloyd, Matheson and Carritt, these compared as under on March 17th:—

Spot quotations—

	1921 March 17th. s. d.	1921 10th. s. d.	1920 18th. s. d.
Smoked sheet (F.A.Q.) ...	10 $\frac{1}{4}$...	10 $\frac{1}{4}$...	1 11 $\frac{3}{4}$
Crêpe (standard quality) ...	11 $\frac{3}{4}$...	1 0 ...	2 0
Parà ...	11 $\frac{1}{4}$...	11 $\frac{1}{2}$...	2 4 $\frac{1}{4}$

Forward positions—

	Smoked Sheet s. d.	Crepe s. d.
1921, March ...	10 $\frac{1}{4}$...	11 $\frac{3}{4}$
" April—June ...	10 $\frac{3}{4}$...	1 0 $\frac{1}{2}$
" July—September... ..	11 $\frac{3}{4}$...	1 1 $\frac{1}{2}$
" July—December ...	1 0 $\frac{1}{2}$...	1 2 $\frac{1}{4}$

Stocks—

	Tons	Tons
Plantation, London } .. Mar. 12th, 1921, 61,994 ... Mar. 13th, 1920, 20,430		
Parà, Liver-pool } ... " 1st, " 750 ... " " 110		
Total	62,744	20,540

BALATA.

This market continues inactive. Venezuela block remains around 3s. 4d. spot or 3s. 3d. c.i.f. West Indian sheet is valued around 3s. 9 $\frac{1}{2}$ d. spot to 3s. 8 $\frac{1}{2}$ d. forward, against 2s. 6d. to 2s. 7d. for good quality Panama block or, at most, 2s. 8d. for Tumaco.

CHARCOAL—A BY-PRODUCT FROM COTTON CROPS.

United Empire, the journal of the Royal Colonial Institute, when discussing, in its February issue, a paper read by Mr. John Wells, formerly Director of Fuel Research to the Egyptian Government, goes on to say: "One illuminating instance of the enormous waste which occurs may be given. If the whole of the cotton-sticks of the United States cotton crop could be converted into charcoal, the quantity would represent somewhere in the neighbourhood of two-thirds of the total petrol production of the world. One shudders to contemplate the annual waste which occurs in West Africa alone."

This was inspired by the following suggestion made by the lecturer, which is condensed by *U.E.* as under:—

"The Empire is lavishly provided by Nature with an enormous quantity of potential fuel wealth in forest, scrub, and jungle, in which constant clearing and cutting takes place. Instead of burning small wood, tree-tops, copse-wood, hedge-rows and prunings, the idea is to utilize such waste material, including stalks of regular crops, in the production of charcoal and gas, at a cost from which the initial and heavy expense of coal or oil is eliminated. Three tons of charcoal may be expected to yield the same power as two tons of petrol or kerosene, and the estate owner may look forward to a perennial store of fuel which he himself will collect and utilize, thereby assisting in the development of countries devoid of oil and coal, or which, owing to the prohibitive cost of fuel and the frequent inability of obtaining supplies in out-lying districts, are seriously handicapped for want of fuel and a means of transportation. Simple plants have been designed for the conversion of any such 'waste vegetation' to charcoal, and for the production of gas for use in gas engines and as fuel for boilers. Cheap transport is secured by utilizing the charcoal in a specially constructed portable gas-producer in conjunction with any type of internal-combustion engine."

Long-Staple Cotton.

WILL THE SLUMP CHECK ITS OUTPUT AND RESTRICT SUPPLIES FOR THE TYRE-FABRIC INDUSTRY?

NOT so very long ago experts were telling us, in the *India Rubber World*, that the world supply of long-staple cotton must be considerably behind the quantity required by the spinners of duck or cotton fabric for tyres if anything like the estimated number of motors, and therefore of tyres, are purchased by the public during this year and 1922. See, for instance, p. 640 of the *I.R.W.* of July 6th, 1920, where Alwyn-Schmidt, discussing "Tyre Fabric and Long-staple Cotton," said that 50,000,000 tyres would be required in 1920, and 60,000,000 in 1921. Taking this to refer to the United States only, would mean one tyre to each unit of population during these two years. Surely this is one instance where the bow has been pulled too strongly. "On this basis," Alwyn-Schmidt goes on to say, "the American tyre industry will need approximately 315,000,000 lb. of tyre fabric, which to produce will consume nearly 400,000,000 lb. of cotton. Experts say that the available supply of long-staple cotton will hardly be sufficient to cover this year's (i.e., 1920) demand and will fall 70,000,000 lb. behind the requirements of 1921."

If this was so when cotton was booming, what will the shortage amount to—if the demand for rubber tyres has not been ever-estimated—now that so much has arisen not only to check the wish to increase the area under long-staple cotton, but to reduce the acreage already planted? As the *I.R.W.* reminds us in its last issue, for January, 1921, much balata belting is now used and the demand will probably increase provided the quality is maintained. As the foundation of this belting is heavy cotton duck, surely here again the rubber and long-cotton industries are dependent one on the other, or rather, to be more accurate, an important (relation of the) rubber industry is dependent on the output at a reasonable price of large quantities of long-staple cotton. Will those supplies be forthcoming in 1921 and 1922?

Remembering this, makes one wonder if, when prices were soaring there was still every indication of a serious shortage in the class of cotton suitable for tyre-fabrics and so for rubber tyres, what will happen now that prices have slumped and gone so low that growers (as with sugar in Cuba) declare the production of this cotton does not pay at present ideas for value, and that if a considerable improvement does not make itself felt soon they must give up its cultivation to a considerable degree.

One can only hope that, whatever happens in America, the producers of sakel cotton in Egypt will be able to produce as much as in 1918 or 1919, as labour and production there must be on a lower basis than in America. With the large area under the well-known American-Egyptian cotton in Arizona the case appears to be different. Here Uncle Sam reckoned that he could keep his own tyre industry well supplied with all the long-staple cotton needed by growing it within the United States so as to protect—as far and as quickly as possible—the American tyre industry generally from the menace of short supplies that was then considered to threaten it.

This was the tale we were told last year, but how different do the facts seem to-day. No one seems in a hurry to buy motors or tyres, and certainly no one seems willing to pay a profitable rate for fine cotton until it seems that even in Egypt sakel cultivation can hardly pay unless the planters are doing much better than those in Arizona. According to the latest reports from Phoenix (Arizona), where the growers are not wanting in push or enterprise, the tale of woe is such that one wonders whether there will be any long-staple cotton at all for tyre fabrics unless the run-down in prices is checked and starts to run-up again. Market prices may be the value of the day, but that does not say that the value of the day is sufficient to encourage producers to continue with cotton or any other crop, and many crops just now "complain of the draught," whatever that may mean. It suggests a chilly welcome when coming to market, which causes producers not to send any more or certainly very much less.

If reports to hand are not exaggerated, either the bottom will have to be put back in the (long-staple) cotton market (it is about 13d. per lb. for sakel, against a record price of 92d.), or else the lack of demand for rubber tyres will not be the only trouble ahead for raw rubber either in America or elsewhere, for just when the demand for rubber tyres does revive the tyre-fabric looks like being very short, or at least the cotton from which it is made will be.

News recently to hand shows that the fall in the price of cotton has been a staggering disappointment to the producers of long-staple cotton in Arizona, and it will of necessity, we are told, very largely reduce the acreage under that crop this year. If the rubber tyre manufacturers or the makers of cotton duck, therefore, have not been grossly exaggerating the number of rubber tyres that will be required during 1921-1922, the cotton growers will not be the only ones to feel giddy through disappointment. One cannot help thinking though, that the long bow has been pulled rather more vigorously than was fair to the cotton planters, who—through these reports—were egged on to plant larger areas with this much-sought-after cotton than now seem to have been necessary.

As things stand at the moment, it is quite possible that whatever acreage was planted last season, this year will not see more if as much as 50 per cent. of the area under cotton in Arizona, New Mexico and California in 1919 or 1920. This applies equally to the fine Pima cotton as to the upland kind grown especially in California. Hundreds of growers, it is claimed, are staring bankruptcy in the face. If this statement is not exaggerated, surely every rubber man, raw and manufactured, will wish to see the worst of the trouble warded off, as otherwise who will be in a position to send to market those supplies of raw cotton during the next two years that will be required, when we are told that unless present values (and that was on December 16th) do not advance very materially, such cotton cannot be produced? Since then prices have further fallen. What the loss must be to-day can easily be gauged when experts want us to believe that short cotton costs on an average a very high price in the U.S.A. to produce and the better-class Pima quite twice as much.

One point upon which all seem to agree is that, if

this crop, or what is left of it, sells on the present basis and no higher, a much smaller quantity will be produced as the next crop; whilst, of course, many individuals will grow none at all.

As with other crops, the banks are said to be increasing the trouble throughout the whole cotton belt, in this case by refusing to advance anything on the 1921 production. On the other hand, we heard that they were making very liberal loans on the 1920 crop in order to keep it off the market. It is generally believed, one Arizona man writes, that there will not be more than 6,000,000 bales of ordinary American cotton produced this year; yet the *Manchester Guardian* speaks of twelve to fourteen million; besides this, how many bales have been carried over unsold from the 1920 crop, because no one would buy (the public having kicked at the prices asked and the quality given for the manufactured article)? And does not this point to all prices of cotton being cut down because of the slump in values due to the outrageous prices asked of the public? Whatever cotton the southern States of America do turn out in 1921, everyone seems to agree that with the 3,000,000 or so bales carried over from 1920, there will be enough for all, and more than enough, in 1921 of that class to go round, especially as high prices have taught the world to restrict their requirements.

At the moment when you talk of this or that raw material being in short supply, your hearers are inclined to show signs of relief; but it will not always be thus, and so it is to be hoped that there will be some basis arrived at on which the spinners and growers and also the big tyre manufacturers, can get together and arrange for the growers to be assured, like the wheat-growers were in the U.K., of a reasonable profit on their year's production, whilst the spinners and tyre makers are made to feel equally certain that they will receive all the cotton they need. "We have, in Arizona and California, thousands of acres of the finest cotton land in the world," wrote one of our Arizona readers, "and, given an assured profit, we could easily produce more than a million bales of long-staple cotton, but to do this the price must be established."

This letter came from a district which is reputed to have the largest pure seed area in the world. Here the cotton grown for seed has been carefully "rogued" each year, and the next crop is planted from such selected seed only, and has given excellent results; but those who have such cotton realize that time and money must be expended to keep up the standard—at least they did so before the slump; but what will they do to-day? When this query is put, it must be remembered that many of the large tyre concerns are directly interested in the Arizona cotton-growing industry, and some even grow cotton of their own. The district planted included areas which turned out, in 1919, some 75,000 bales of the finest American-Egyptian cotton. What will happen to this section in 1921 and 1922?

The President of the Arizona American-Egyptian Cotton Growers' Association, of Phoenix, Arizona, wrote us recently that in 1920 about 225,000 acres in Arizona and California were planted to Pima cotton. Of this area the Goodyear Tyre and Rubber Co., the Fish Tyre and Rubber Co., and the Dunlop Tyre and

Rubber Co., controlled 43,000 acres, whilst the remainder is in the hands of independent growers, and the crop will be sold wherever the best price is obtainable. Very little of the last crop was sold by mid-December, and there is no reason to expect it to have changed hands since to any extent. What is it worth to-day compared with three, six or nine months ago? When this crop has been sold, or even before, the producers will have become painfully, very painfully, aware of what comparatively low profits will accrue to them. This fact is what will determine the near future prospects of long-staple cotton products, especially the outputs for 1921-1922. Surely the tendency, in face of all we hear, outside of Egypt, will be to considerably curtail the output compared with what it was a year ago, as stated at the beginning of this article. Should this prove to be the case, will the heavily curtailed demand for rubber-tyres continue long enough to prevent this further restriction in raw cotton for tyre-fabrics from being noticed? If not, where will the cotton come from to satisfy the demand from tyre-makers, and what will the price of the resultant fabric be to the makers?

Will Future Sugar (and other) Supplies Suffice?

READING some notes in the *London Observer* of February 27th, on the approaching de-control of sugar (the next day), and fearing lest the information would give the public an erroneous idea as to the current and future relationship of supply v. demand in the world's sugar markets, the following letter was addressed to the Editor of our well-known contemporary, which he was good enough to publish on the following Sunday, March 6th.

Unfortunately pressure of space, or some other reason, caused an important paragraph to be omitted. Below we print the letter as sent in, the portion omitted being in italics, so as to show exactly what appeared in the *Observer*. We trust others will take up the cudgels on behalf of our future needs in the way of sugar supplies, as a raw material, for Army and Navy supplies and also for use in the home. We have been caught "short" once, with the usual consequences. If our Editor and others are right in their calculations, this country at any rate (if not America and the world generally) will be caught short again, and have to pay as high for their present indifference as to what the future holds in store for them as they were forced to do whilst the war was on.

Diverting from the subject for a moment, we would claim that it may yet be the same with rubber. It certainly will be so in a year or two's time if the safety of that industry finds itself dependent on the foresight of the public and their leaders. So far, thank goodness, there is no signs of this being so.

Mr. J. W. McConnell, our leading authority on cotton as a raw material and also in its manufactured state, says as much of that article: "I should particularly have liked to give you the reasons for my convictions, notwithstanding the present apparent plethora of cotton," he told us on March 8th, at the

Royal Colonial Institute meeting, "that before many months are past the world will again be calling for cotton, and that year by year for many years yet to come, increasing quantities will be required." This is no dream-wish of an idealist, but the carefully thought-out opinion of a practical Manchester man. Sugar is bad, rubber is worse, but cotton in the extreme of its misery must surely at the moment be the worst of the three, and yet this is what we are told by a man who thinks, by one who knows the cotton world as a buyer and a seller far better than most, even of those who buy and spin with him up at Cottonopolis, U.K.

THE SUGAR POSITION: 1921 AND 1935.

SIR,—Every householder must have read with interest in last Sunday's *Observer* your correspondent's notes on "The Sugar Position," and learnt with hopeful pleasure that "the only point of certainty is that even without control there ought to be an abundant supply."

We were also told that this year the world's sugar crop is estimated to produce 18,900,000 tons. Does your correspondent mean 17,900,000 tons, as Messrs. Willett and Gray estimated it fairly recently at 17,320,150 tons, say 12,689,138 tons of cane-sugar and 4,613,327 tons of beet, and in this is included America's abnormal increase of beet-sugar from 633,000 tons in 1919-20 to 935,000 this crop?

Just now, when the Empire as a whole (as contrasted with the housewife as a unit of that whole) is trying to put its sugar industry generally, productive and manufacturing, in order and place supplies for future requirements on an assured basis, one cannot be too definite with any statement made in the Press on sugar production, and above all, let us rather be below than above in our estimates of actual figures published concerning the crops looked for, as it will not hurt the producers to do so and will be far better for the industries—many and important—using sugar as their raw material, and also for the housewife, ever keen on seeing adequate supplies for household use, to have a surplus (which is not likely) than another troublesome shortage, which is bound to come if we are not careful in how we keep crying "There's plenty of sugar."

There is plenty of sugar at the moment, because we have all learnt to go without and because, over large areas where more sugar is wanted, money is lacking to buy it. But there would not be enough sugar to go round to-day, in spite of the impetus to increased cultivation and outputs that the high prices gave to the planters, were the demand normal on a pre-war basis, taking the increase in the world's population since 1914 into consideration.

Roughly speaking, reliable authorities say that we should—given a pre-war *per capita* consumption—have needed 22,000,000 tons of sugar this year, and, on this account, should provide (with Labour's increased spending powers) another million tons to this each year, making 35,000,000 tons of sugar needed in 1925. Let us say 30,000,000 tons only, and then ask any practical man to tell you what steps have been taken throughout the world to arrange for even one-fourth of such an increasing supply. We know what one firm (and more than one) in India is trying

to do, but what of the West Indies and elsewhere within the Empire, what are we doing to increase production over there, when there is so much to do in a comparatively short period?

Without going into details, I would remind the lay reader that India only produces, we are told, one ton of *gur* to the acre (equal, perhaps, to one-third ton of good sugar) of which good sugar Java gives us four tons to the acre. But even on Java's basis to produce a million more tons in five years, much less every year, means that another 250,000 acres must be given up to sugar, and the world has not such areas to give. Our much increased populations need also more of other footstuffs as well as sugar, and so what we must all do, i.e., support the technical and practical experts in their efforts to do, is not only to plant up every acre possible with sugar-cane, but also and mainly to see that the areas already planted give much larger yields than at present. We have done this with rubber and other crops, and so we can do it with sugar if public opinion will make itself heard and insist on a move being taken to assure such increased supplies as will be needed as the years go by.

That is why you cannot be too definite when speaking of sugar. Sugar "years" are a movable feast, and the question of adequate supplies must include the years to come as well as the weeks close at hand.

H. HAMEL SMITH,

Editor, *Tropical Life*.

112, Fenchurch Street, E.C.3.

March 2.

The situation, therefore, with sugar, as with cotton, rubber, cacao, &c., needs a guiding hand to point the way. We are in the midst of a terrible slump with prices to the producers far too low. This tends to discourage production and check outputs. Such a result of the slump must not be encouraged, but—one can well ask—who will stand the racket whilst the planters are waiting for the world to get on its legs again and need these large outputs that it will be clamouring for in a year or two's time? We cannot answer this query, not being statesmen or financiers, others must come in and share the work and give the answer. A satisfactory answer, not a reply, as "No one," must come from them. All we claim is that large supplies will be needed whilst the present slump tends to discourage and decrease outputs, and as matters tend, if we are not careful, when the needs will be greatest, supplies in comparison will be at a minimum, both what we eat, we wear, or (wish to) move about on in the shape of motor tyres.

SUBSCRIBERS, intending visitors and correspondents will be wise to note on ahead that some time after June our Editor will be leaving his City office—where he has been since 1883—as the house is to be pulled down and rebuilt. In the April and subsequent issues more definite information will be published. Meanwhile, of course, letters and other communications addressed to Messrs. Bale, Sons and Danielsson, Ltd., the publishers, at 83-91, Great Titchfield Street, W.1, will always reach the Editor promptly.



Tropical Life "Friend."—No. 189.

PHILIP SCHIDROWITZ, PH.D., F.C.S.
The Rubber Scientist.

WE have had the pleasure of knowing this "Friend" for many years, as all who are really interested in rubber is bound to do, although anyone with a more retiring nature can hardly be imagined. It is not self-advertisement, a good press, nor a prominent platform reputation that has placed Dr. Schidrowitz in the front rank of economic scientists, but close application and attention to the small details of everything brought before him. Yet, whilst every rubber man knows "Our Friend" by name and reputation, one wonders how many (unless at a scientific meeting or congress) have met him face to face. Were it not for the telephone, even we at times would have imagined either that the Doctor never left his laboratory or had gone for another trip out East to study rubber on the estates, so seldom does he seem to communicate with the outside world. Dr. Schidrowitz was certainly one of the first—if not actually the first scientist to give himself up seriously to studying the chemistry and technology of plantation latex and rubber. As such a start was made a good number of years ago—and time passes quickly to all keen on tropical economics and development work—it goes without saying that when discussing comparisons of the methods employed at the start and at the present time, whether in connection with planting distances, treatment of the latex, or the working up of the raw rubber into any of the thousand articles into which it enters, Dr. Schidrowitz's opinion carries much weight. What more natural, therefore, than

that he, with Dr. Torrey, should have been chosen to preside at the coming Rubber Congress?

What we associate with the earlier work of "Our Friend" are the investigations he made in connection with the structure of crude rubber and its viscosity. His most important publications, both from a scientific as well as from a practical point of view, so far as plantation work is concerned, were probably those dealing with the "variability" of the cultivated product, its nature, and the devising of methods for measuring the same, and of valuing the rubber on a rational, as opposed to the old empirical, basis. This work led to or involved a study of the mechanism of the vulcanization of rubber, and particularly of the nature and behaviour of the rubber stress-strain curve during the (vulcanization) process. The methods involved and principles discovered in the course of these labours have been very widely adopted by scientific and technical men throughout the rubber manufacturing world.

It gives us much pleasure to realize that the world, producing as well as manufacturing, are learning to appreciate practical (as opposed to empirical) scientists like Dr. Schidrowitz; may cotton also soon have such men to train others as suggested, and in fact demanded by Mr. J. W. McConnell before the Royal Colonial Institute on March 8th (see p. 41). One day perhaps South Kensington and Glasgow (if nowhere else) will have "chairs" for all leading tropical crops, sugar, cotton, rubber, oils, cacao, coffee, &c., to train the men, planters or plant-doctors, in the way they should go before leaving to complete their studies at the Agricultural College in the tropics itself.

The appointment, therefore, of Dr. Schidrowitz as Director of the School of Rubber Technology, is a step in the right direction. Now it is for the other industries to make similar appointments, especially cotton.

The *Chemical Age*, of August 7th last, called attention to the training of "Our Friend" at St. Charles' and later at University College School in London. From there he passed to Zurich and Berne. The classes at the Northern Polytechnic Institute under Dr. Schidrowitz's charge have proved very successful, but like other successes, they now want to be expanded. With a view of doing so, and of filling various gaps, considered to exist, an appeal is likely to be made for the purpose of providing funds for a scholarship and also a building and equipment fund. Such an appeal will, we feel sure, meet with a ready response both from planters (to help further the demand for raw rubbers) as well as from manufacturers. Nothing is more likely to extend the demand for rubber along its present channels or to discover unexpected uses for further supplies than such classes under so keen and experienced a Director. Long, therefore, may both flourish.

Those who attended the meetings, with Dr. Schidrowitz in the chair, at the 1911 or 1914 Rubber Congresses, will be well advised to look up the papers then read and the discussions which followed and compare them with views now held and likely to be laid before us in June, seven years after the previous congress. We feel certain that both in the hall downstairs and at the Congress table, those attending the meetings will be surprised at the strides made in all directions since we last came together.

Business Notices.

1.—The address of TROPICAL LIFE is MESSRS. BALE, SONS AND DANIELSSON, Ltd., 83-91, Great Titchfield Street, London, W.

2.—All literary communications should be addressed to the Editor, and accompanied by the necessary stamps for their return if not accepted.

3.—All business communications and payments, either for subscriptions or advertisements, should be sent to the Publishers of TROPICAL LIFE. Cheques to be crossed The Union of London and Smiths Bank, Ltd.

4.—The Subscription, which is Twenty Shillings per annum, may commence at any time, and is payable in advance. Life Subscription, £10.

5.—The Advertisement Department is at 112, Fenchurch Street, E.C., where all inquiries respecting advertisements, charges, &c., should be addressed c/o the Manager of the Department. At the same time will advertisers kindly note that all copy and blocks for advertisements must be sent to 112, Fenchurch Street, E.C., before the thirteenth of each month, failing which, insertion of same in current month cannot be guaranteed.

6.—The Publishers reserve the right of refusing any advertisement, or the matter or "copy" sent in for any advertisement. They would also be glad if advertisers would refrain from using the "powerful" or extra heavy type that some adopt at times. Doing so renders the paper unsightly, and is unfair to the other advertisers as well as to ourselves. If all used such type, no one would benefit; to allow some to do so and not others, would be unfair.

7.—Advertisers are only entitled to three changes of matter in the year of twelve issues, unless (1) they send electros for insertion, or (2) are willing to pay for the cost of setting up the advertisement. Owing to present high cost of composition and printing work we cannot depart from this rule.

8.—Changes of address should be promptly notified.

9.—Non-receipt of copies of the Journal should be notified to the Publishers.

10.—The Journal will be issued on or about the twentieth of the month.

The Managing Director and Editor of "Tropical Life" will be pleased to consider the printing and publishing of useful technical works on Tropical Agriculture, Medicine, or other subjects dealing with the development of our Colonies and the Tropics generally, as well as similar books dealing with Russia, Japan and the East, whether the books are to be published in English or other languages.

Tropical Life.

MARCH, 1921.

Cotton Growing within the Empire.

THE NEED OF TRAINED MEN TO CARRY ON THE WORK.

IN the paper he read at a meeting of the Royal Colonial Institute on March 8th, with Sir Henry Birchenough in the chair, Mr. J. W. McConnell, well known among both producers and buyers of raw cotton, told us that, as the world was before the war, the cotton industry had far outpaced all other textiles and attained to an annual production of 5,400,000 tons as compared with 1,250,000 tons of wool, 500,000 tons of flax, and 24,000 tons of silk. He then added the paragraph reproduced at the conclusion of page 39, that, notwithstanding the present apparent plethora of cotton, the world will, before many months are past, be crying out for more.

We are, however, lacking in the experts and trained

producers to help native races improve what cottons they do grow or extend the areas planted. With so many capable rubber men adrift, one feels that here is excellent material to train at the shortest possible notice as cotton planters. It would only be the plant itself that they would have to study, for they know the tropics, they know natives and their ways, and have grown used to the climate. The Cotton Growing Committee therefore has only to look East, after studying the *Malay Mail* or some such paper on this side, and they will surely get all the planting and plant-doctor experts needed to start with whilst training others for future work.

After reviewing the outputs and possible extensions at the various centres, especially in Nigeria, Mr. McConnell went on to say that a small but highly efficient centre has been located in Westminster, and the Committee (the Empire Cotton Growing Corporation) have secured the services of Sir James Currie as General Director, Colonel C. N. French as Assistant Director, and Mr. L. G. Kilby as General Secretary. This done, there are five urgent necessities:—

(1) *Enlargement of Agricultural Staffs.*—It is becoming universally recognized that the prosperity of all agricultural countries, and particularly of newly developing agricultural countries, is conditioned upon the provision of adequately staffed and efficient agricultural departments. It will be the business of the Corporation to find the men and, where necessary, to supply the pay for large numbers of men to work directly or indirectly on cotton.

(2) *Increase of Knowledge.*—There are many sciences involved in growing cotton. Physical sciences dealing with climate and soils, irrigation and drainage, botanical sciences such as plant physiology, plant genetics, plant pathology, are involved, so also entomology and mycology. All of these are concerned with other plants as well as with cotton; but there is also wanted more extended and more accurate knowledge of the scientific principles which underlie the productivity of the cotton plant and its development of uniform and useful fibre. Remember that the natural wild plant very rarely gives useful cotton. Commercial cotton is the result of human intervention. In all these sciences, research is wanted, and it is hoped both to assist the different cotton growing districts in the Empire in conducting practical investigations into their own special problems, and also to provide in a suitable place, or possibly places, the necessary facilities for research into the deeper mysteries of Nature.

(3) *Training of Men.*—The initial difficulty is that neither for research work nor for practical work in agriculture are there many trained men available. Therefore this initial difficulty must be dealt with from the very beginning. Two methods are proposed: First, to offer bursaries to young men, for the most part graduates, for special training in science and in research; and, second, it is hoped, in conjunction with the many other British industries whose groundwork or whose raw material is found in living plants, to increase at British universities the facilities available for studying and teaching the scientific laws which govern the life of such plants.

(4) *The Commerce of Cotton* will also need to be

carefully studied. Infant industries require help in many ways; and the Corporation will have to steer between excessive caution on the one hand, resulting in discouragement; and on the other, excessive liberality, leading to its own bankruptcy and consequent disappointment to all concerned.

(5) And then there are the travelling commissioners at the top of this tree of tropical and sub-tropical development work within the Empire.

The Committee have designed that there should be a small and select staff of specially qualified men who will practically spend their time travelling round the cotton districts of the Empire. These men will visit each country and district in turn, they will personally investigate conditions and personally discuss difficulties and opportunities with the Local Government and its Agricultural Department and with individual growers. It is hoped that the Assistant Director will have leisure to make himself personally acquainted with the principal cotton fields; but it is also intended that there should be three or four other men on the Central Office staff who will be known as Travelling Commissioners.* Two men are already under special engagement of this kind. Sir Hector Duff is visiting Nigeria, and Major Hastings Horne is travelling in Tanganyika. Their reports should be available about the time when the Central Office will be able to begin work.

Surely, therefore, we are right to call attention to this important work and to advise men already trained to tropical planting and estate work to keep their eye on the E.C.G.C. and see whether better and more remunerative work cannot be done in the cotton belt than elsewhere since there is such a scarcity of trained men and such need of illimitable supplies of cotton within the Empire.

At present, as the *Journal of the Department of Agriculture*, South Africa, reminded us the other day, North America produces about 60 per cent. of the world's cotton. In other countries, where cotton is grown to any appreciable extent, e.g., Egypt and India, the possibilities of greater production are, as far as we at present know, more or less limited. The only countries where cotton can still be grown extensively are Africa and a few South American Republics, especially Brazil. The future for cotton culture in Mesopotamia appears to be good. Much is being done by European commercial bodies to further cotton growing in Africa, as it is a matter of life and death for the cotton factories on which hundreds of millions of pounds have been invested, and on which millions of people are dependent for their daily bread.

Meanwhile every year the United States of America manufactures more of its cotton, and more textile buildings are continually being erected, with the result that the manufacturers in England and on the Continent are unable to obtain supplies for their own factories. The demand is increasing much faster than the supply. Of the world's population about 500,000,000 are properly clad, 750,000,000 partly dressed, and 250,000,000 practically naked. The

population of the world is getting more civilized, and the first requirement next to food is clothing in some form. The production of wool, camel hair, and other fibre suitable for clothing is so limited that at present the only solution seems to be in a very much greater production of cotton.

The tendency is for prices still to rise, and the farmer need have no fear whatever of over-production. In 1764 North America exported eight bags of cotton to Liverpool, and this probably represented the whole amount exported during that year, whereas to-day the export runs into millions of bales. The amount of cotton grown here at present and exported to other countries may not be great, yet it is most encouraging if one considers that the culture of this crop is of recent date and practically unknown to most farmers of South Africa, and, further, that the northern and eastern parts of the Union, where cotton is successfully grown, are still sparsely populated by whites. The prospects of the man who goes in for cotton growing are decidedly good, and there is not the slightest reason why thousands of farmers in the lowest veldt should not give attention to this very promising crop.

In the face of all this, who can say that there is not work—much work—to be done for the good of the Empire, and much money and prestige to be obtained by those who come in at this, the start, to help?

As if to carry out the suggestion we have so often advanced for Brazil to develop her splendid cotton-producing possibilities, leading members of the International Federation of Cotton Spinners and Manufacturers recently left for the cotton-growing areas of that country. On their return they will report to the committee on the prospects of promoting cotton-growing in Brazil, which country we have always claimed is capable of growing long-staple cotton almost equal to the best varieties grown in Egypt, especially as it seems more than probable that the Egyptian variety came from there in the first place.

Fine Cacao—What of its Future?

THE other day an article in the *Confectionery Journal* of London discussed future prospects of Guayaquil cocoa, and in the course of its remarks asked: "Is there any chance of the cheaper grades of cacao altogether superseding the old-established growths and, in face of the continued tendency of the manufacturers the wide world over to use more and more (until it has come to use mainly) of the cheap, dark Accra cocoa, when any other kind is used, to gauge its price by the value of Accras. In a word, confining ourselves to Ecuador only, will the day ever come when Guayaquils will be of no more account than Accras, and even will manufacturers, having made up a recipe for Accras, be unwilling to take Guayaquil cacao at any price. . . ." Costs are so high and prices low that it may be no Guayaquils will come to market. The cacao "will be left to rot on the trees." Planters claim—it cannot be said off-hand with what truth—that the export taxes in Ecuador are higher than in any other country. Is

* We should be sorry to lose Mr. H. C. Sampson from South India, so say, with selfish regret, that we believe he would make an excellent travelling commissioner if it is possible to entice him away from his coconuts, &c.

this correct? Whilst discussing all these knotty points, the one that may possibly prove the most troublesome and the least easy to remedy is the ever-increasing tendency for the world to buy more and more of the common grade cacaos, and less and less of grades like Guayaquils. Let this become a regular practice and again one wonders—What will be the future of cacao production in Ecuador?

The West Indies can also ask the same question, whilst with Central America, which produces the best of all kinds, the planting industry is dying out more surely than the Red Indians are in the U.S.A. This is what the *Economist* published in its commercial issue of February 19th, when discussing the various markets and their behaviour during 1920:—

“A correspondent writes: Any account of the raw cocoa market during 1920 must give prominence to the fact that, as things are moving to-day, the commonest growths are selling more freely than the good to fine growths, and at a better level of value in comparison to their yield per acre, cost to prepare and place f.o.b., and also to the colour and flavour which the beans pass on to the manufactured article. Whether one writes, therefore, to interest the producer, the manufacturer, the dealer, or the actual consumer, this fact must tinge all you have to say, and must cause you to devote more space to that centre whose output is at the top of the list in quantity, since it exceeds that of all other centres, yet whose cocoa is at the bottom of the list when it comes to quality—I am, of course, referring to what are known as Accra kinds, produced in the Gold Coast Colony of British West Africa. This persistent downward trend in the quality of the cocoa purchased, not only here but in America as well, must, unless checked and turned aside, revolutionize the whole of the cocoa-producing industry. It must certainly cause anxiety to the other centres producing fine grades, as in Java and Central America, or even good medium to good cocoas, as in the West Indian islands.

“If America is buying and sending into consumption, as she did in 1919, such heavy proportions of the cheap and cheapest growths—say, 1,165,671 bags of Accra cocoa, 229,158 bags of Sanchez (San Domingo), and over 500,000 bags of Bahia (the actual total of these three being 1,907,330 bags), out of the 2,570,382 bags that she delivered into consumption in that year (1919), and a further 1,315,773 bags last year out of a total of 1,936,505 bags sent into consumption, how can producers of the finer growths pretend that all goes well with them? In the U.K., out of 104,282 tons of all growths exported, we received 66,516 tons of West African, mainly Accras from the Gold Coast, which, at 16 bags ($1\frac{1}{4}$ cwt. each to the ton) = 1,064,256 bags, against 640,693 bags only imported by America last year.”

“The old-established cocoa-planting industry in the West Indies is, it must be acknowledged, confronted with a serious menace, after having been in existence since the days of the first French revolution, if not before. Many of us have got figures of the exports of Trinidad's cocoa since 1820 or so, and more recently Grenada has come to the front as quite an important centre, producing 70,000 to 80,000 bags a year of a nice, even-grade of cocoa that used to be most sought

after by manufacturers. Jamaica, also a substantial producer in comparison to her total exports, outside bananas, promises to increase her shipments if prices tempt her to do so. Then we have a small quantity of fine cocoa from Montserrat, and fairly even shipments from St. Lucia and Dominica. In face of the aggressive domination of the markets by Accras, these better growths are none too certain of their future.

Latin America produces the very finest cocoa in the world. But it has come about that in Mexico, Colombia, Nicaragua, Venezuela, &c., the export of really fine beans is quite negligible, and the industry generally, especially in Mexico, whose cocoa was the finest of all, is going backward to the point of extinction. Venezuela is not so bad—as yet—and then there is Ecuador.”

It is to be hoped that a change will come over the world; that the public will be made to realize that their finest chocolate is going never to return and will refuse to buy common makes even from leading firms who persist in flooding the market with common, dark (but not cheap) chocolates, and thus force attention to be given to these older and superior growths before it is too late to save them.

Vegetable Oil Notes.

DWARF COCONUTS—NEWS FROM MR. HANDOVER.

READERS of the appendix on “Dwarf Coconuts” in the second edition of Messrs. Brown and Munro's book, will be interested to know that we have received a letter from Mr. W. P. Handover, manager of the Sungei Nipah Estate, which is described and discussed in the second edition of our book.

Referring back to what Mr. Handover first reported of this, the only all-dwarf estate planted, a total of 500,000 nuts was obtained in 1918, which fell away (so we heard in London) to 365,000 in 1920. Probably this was on account of the tendency (suggested in January, p. 11, in the paragraph headed, “Why Dwarf Coconuts Fall Off in Yield”), of this variety to exhaust itself by calling upon the root system of the palms to feed the tree to a greater extent than they can properly manage, and so now and again the roots strike and the yield goes back. However, in 1920 the 250 acres planted seem to have pulled up again to a considerable degree, since the crop last year numbered 737,000 nuts, which Mr. Handover considers was “not bad.” “Had the trees,” he added, “been better cultivated my anticipation of a million nuts would have been realized.”

Discussing the origin of the dwarfs, the Manager of Sungei Nipah suggests that they originated from Java. The oldest trees, whose history he can trace, came from there, and he considers that there appear to be dwarfs found wherever the coconut is cultivated on a large scale. This is what we also pointed out in the appendix of our book.

“I was interested in your copy of TROPICAL LIFE,” concluded Mr. Handover, “with its notes on oil-palms in Malaya, and have a few growing on my own little estate (Nyuir Gading) close by, where, by the way, as an emergency food-production scheme, I inter-

cropped with *ragi* (rice) last year, and produced 250,000 *gantongs* (gallons), obtaining the special prize for cereals in the Negri-Sembilan Show." With the letter came a photograph of this estate, with quite a large happy family, vegetable as well as animal, for there, surrounding the bark and lalang house (costing £30 only), to which the owner retires for his week-ends, are to be seen dwarf coconuts, bananas, maize, *ragi*, sugar, cotton, tapioca, yams and other vegetables, as well as cattle, goats, sheeps, fowls, geese, turkeys, ducks, pigeons and several dogs.

A PAMPHLET ON COPRA DRYING.

Our old friends, the Tyneside Foundry and Engineering Co., of Elswick, Newcastle-on-Tyne, have sent us a useful illustrated pamphlet on their "Chula" method for drying copra, together with some general notes on the preparation of copra. It would be interesting if Mr. Elsworthy or one of their representatives told us something of this important section in the coconut industry at the Congress in June. As makers of machinery for so many tropical products—tea, coffee, cacao, rubber, &c.—all that the firm has to tell us would be worth listening to.

In the present pamphlet there are several illustrations of dryers, also a view of Kelantan Estate, showing a dryer installed, whilst further on we come to a "Chula" shredding machine and information on the Tunnel System of drying, shown at work on the Straits Plantations' Estate. A line to Elswick will bring a copy to all buyers. We recommend an early application.

PROF. COPELAND'S BOOK ON COCONUTS.

We are very pleased to see that the much needed second edition of the above book has made its appearance at last. It was a pleasant surprise. We have had so many applications for copies and could only reply, "Out of print." Now we need no longer say so. We are told there are some revisions, and the price has been slightly increased to 20s. net, postage about 1s. 6d. Considering all things, this is a lower price than we dared think possible. Now the book is out, the orders will, we are sure, come rolling in.

PROPHET—WHAT OF THE AUTUMN?

As stated on our opening page, we hope that margarine and margarine oils will occupy a prominent position at the June Congress. With the threatened inrush of butter from all sides, prices must drop, and, of course, if butter comes down the value of margarine will fall too, and then how will it fare with copra and vegetable oil? It is believed that during the short-supply months, say October, in London, copra will still remain high, perhaps even at £30 a ton; but why should this be? Are contracts to be made that will keep up the rate to such a level? At the same time coconut oil is not so prime a favourite, current reports speak of low values. It is said published prices, including our own, are above real values. Is this so? If coconut oil goes lower, and copra remains up, we may see Malabar copra quoted again, especially if, by October, freights fall, as many hope they will. There is much divergence of opinion as to what the autumn and winter will bring us in the

shape of demand and prices, but all agree that it is certain to be quite an interesting problem.

STANDARDIZE YOUR OIL.

How often have suggestions been sent out East for estates and entire centres to try and grade and equalize their output, so that if you buy their oil, no matter in what quantities, you can be sure of the quality. Made into margarine, you should be equally certain of the result. Colour, taste, consistency, keeping properties, &c., will be far more reliable than now, when no two parcels seem able to run the same. This was commented on when butter was non-existent. It will drive margarine from off the household tables now that butter is coming along at popular prices, unless an improvement can be introduced. It may even be necessary to give up shipping copra at all, since in these hustling days the estates try to do in two or three days what Malabar devotees take ten or eleven days to achieve, and so if other countries wish more successfully and continuously to compete against Malabar, it may be that they will also have to crush on the spot and ship the oil only and not the copra. When all the big centres do this, with Sydney (N.S.W.) acting as the central factory and distributing centre for the South Sea Islands, then each can advertise and push the sale of their oil throughout the chief consuming countries, and urge them to buy margarine in which their oils predominate as being the best and most reliable for household use. It will not be the firm making the margarine that will need to advertise half so much as the countries whose oils are used as the raw material. Best of all will be for producer or exporter of the oil to go shares with the manufacturer in the cost of advertising to push the sale of the margarine and hence of the vegetable oils.

All these and other important suggestions to safeguard the future of vegetable oils and margarine in their coming competition with butter will be discussed more and more in the pages of the London trade journal, *Margarine*, to which we drew attention last month (p. 28), and it is for this reason that we hope producers and exporters abroad will subscribe to and generally support that paper. Those present at the coming Congress should also make a point of attending when Mr. Bastow, the editor, reads his paper.

MARCH VALUES.

COPRA PER TON—SPOT.

											Hamburg and Marseilles Rotterdam.				
London															
F.M.S.											Ceylon				
£ s. d. £ s. d. £ s. d.											F.M. F.M.S.				
March	19	...	28	5	0	to	29	5	0	29	10	27	10	28	10*
	18	...	28	10	0	„	29	15	0	29	10	27	10	28	15*
	16	...	28	0	0	„	28	15	0	29	5	27	10	28	10*
	12	...	28	5	0	„	29	10	0	29	10	27	10	29	10*
	5	...	29	10	0	„	30	15	0	30	5	29	0	29	15*

COCONUT OIL PER TON.

		Ceylon				Cochin				
		Spot		For shipment		Spot		For shipment		
		£	s.	£	s.	£	s.	£	s.	
March	19	...	50	0	...	45	0	...	55	0
„	18	...	50	0	...	45	0	...	55	0
„	16	...	55	0	...	45	0	...	60	0
„	12	...	55	0	...	46	0	...	60	0
„	5	...	60	0	...	54	0	...	60	0

OTHER OILS PER TON.

		Castor First £		Ground-nut Crude† £		Palm kernel Crude Hull spot £		Cotton seed Crude Egypt £
March 19	...	50	...	38	...	45 0	...	31
" 18	...	50	...	38	...	45 0	...	31
" 16	...	50	...	40	...	46 0	...	30
" 12	...	50	...	40	...	46 0	...	30
" 5	...	47	...	40	...	N/Q	...	31

* Rotterdam only. Hamburg not quoted. † English crushed, raked.
N/Q—No quotations.

Trade, Politics and Finance.

MUCH has happened since we last sat down to pen these notes. In America, Warren Gamaliel Harding has replaced Woodrow Wilson as President of America. We trust Mr. Wilson will completely recover his health. Whatever criticisms we may have showered on him as a politician, our respect for him as a gifted private citizen is without limit, and anything that tends to reduce his ability to give the world of his best is a distinct loss to us all.

Perhaps we were a little disappointed over Mr. Harding's presidential address. If America imagines she can live in a glass house of perfection because she is too far off from those who could throw stones at her to be able to reach her, that is no concern of ours, but we prefer—with all its very serious drawbacks of which we are still having a full share—the rough and tumble life of Europe to all the saint-like perfection of a legally, if not morally, dry and sabbath-keeping America, even if that country is beyond the stones of sarcasm from outside scallywags. But is she so immune, as one would gather from the new President's remarks, we wonder? We see clouds out East. We have known hailstones from above break greenhouse coverings miles away from naughty boys before now. Can nothing reach across and harm America's unruffled complacency? Let us hope not. All the same, we admire Mr. Harding, and trust that in the future, as in the past, whatever America's Japanese and home policies may be, she will continue to do equally useful work in the agricultural world, and not stint the money she spends on the Philippines, which has taught us more that was new of crops and tinted races than any centre of the same area during equal periods. We have always appreciated our publications from the Philippines, from Hawaii and Porto Rico, also from Guam, and trust that under the new régime they will continue to do the same work that they carried out under Colonel Roosevelt and Mr. Wilson.

And now we come to our own affairs and the giving back to the Turks all that they had in Europe, if not more, whilst our limp policy towards Central Europe, if it pleases no one (outside Parliament) at home, must be a source of agreeable surprise and immense merriment to Berlin. We should imagine that the news in the papers over last week-end (March 12th) will put back the welfare and prosperity of the Allies every whit as badly as the loss of the war is supposed to have harmed Germany. It is all so incomprehensible to us, that we will pass on to the market reports, wondering how much worse things will become,

through the blunders of our rulers, than they are at present.

A glint of sunshine comes in the signs of cheaper money, and yet not too cheap to cause crack-brained speculation. The reduction in the selling rate for Treasury Bills from $6\frac{1}{2}$ per cent. to 6 per cent. should, we are told, prove a forerunner of a lower Bank rate. Such views, although finance is unsettled, has caused considerable brightening up in ideas in many ways. May this be the beginning of more reasonable and remunerative days.

Coming to the produce markets, we hear of a good demand for sugar and are aware that those who distribute this article or use it as a raw material are wondering whether the price will not advance now that control has been completely removed. Wholesale prices certainly seem no lower. Refined advanced 6d. lately, and British West Indian Crystallized are still at 60s. and over, with 54s. to 56s. for brownish Mozambique, and up to 52s. for Antigua Muscovado. We refer our readers to the article on the future of sugar, *ex the Observer*, p. 39.

Coffee receipts now amount to 10,209,000 bags, against 5,502,000 last crop, 6,870,000 in 1917-18 and 12,402,000 bags in 1916-17. Sales include Mysore at 101s. 6d. to 110s. 6d. for fair to good bold, and 103s. to 127s. for peaberry. Middling greyish Nairobi went at 70s. to 80s., fair bold greyish Uganda 64s., good greenish 74s. 6d. Against these, good to fine Costa Rica went at 93s. 6d. to 110s. 6d., fancy blue 126s., peaberry up to 157s. 6d.

Cotton closes at between 7d. and 8d. per lb. for fully middling, with higher quotations as the months go by, say 7·21d. to-day, 7·59d. in July, and 7·85d. in December. Egyptian sakel has moved upwards but is still under 13d. per lb. both spot and forward, July being quoted at 12·90d. only. The top price for Manila Hemp is £38; of Sisal we have no price. New Zealand is put at £42 to £45. With Shellac, T.N. Orange is at 270s. to 310s., but future rates seem much lower. Palm kernels have been pressed for sale, and are down to £19 or a little lower (against £46 to £47 a year ago). Copper is worth about £66, and with Tin, quotations run from £155 to £159.

Coming to finance, the following is a comparison of the principal points in the returns of the Bank of England at the present time and the corresponding week last year.

	March 19th.	1921	1920
Bank Bullion	...	£128,325,499	£118,370,077
Reserve of Notes	...	16,857,090	84,938,100
Private Securities	...	102,076,713	91,954,013
Notes in Circulation	...	128,106,095	101,171,915
Rate of Discount	...	7 per cent.	6 per cent.
Price of $2\frac{1}{2}\%$ Consols	...	47 $\frac{3}{4}$	48
Price of Bar Silver	...	32 $\frac{5}{8}$ d.	70 $\frac{3}{8}$ d.

The London Cocoa Market.

BY THE EDITOR.

OUR readers will notice that for the first time since TROPICAL LIFE started sixteen years ago a photograph appears in the midst of these notes. Some time ago both the King and Queen honoured Messrs. Cadbury Bros., Ltd., with a visit, when they closely inspected

all sections of their extensive works, especially those in connection with the welfare of the workers. Both at Messrs. Cadbury's and at Messrs. Pascall's, I can vouch that no fault was found with any of their arrangements. Many years of personal knowledge of both firms enables me to say this. On the present occasion Queen Mary, having been to Bournville, was not altogether ignorant of the equipment of a chocolate factory, and so Mr. Sydney Pascall or his brother must feel all the more gratified at the results of the visit when the group reproduced here was taken.

Talking of factories reminds me that efforts are being made, as stated in the opening notes of this issue, to include a paper on cocoa and chocolate machinery at the coming Congress. As nothing will

Nigeria Gazette, published on the last Thursday of each month), dated December 30th, has just come to hand. This contains particulars to the end of November. But where is the January issue to take us to the end of the year? We are not alone in the interest taken in the output of cocoa shipped *via* Lagos, and since this is so and the more interest taken in a growth, the better the demand and subsequent price realized, it may be worth the while of the shippers and officials over there to encourage this interest by publishing reliable figures promptly, so as to avoid "reported" exports to "bear" the market, which are current in the absence of official returns. For the eleven months ending November 30th only 16,500 tons were exported, against 24,600 tons in 1919. We do not know the



Hon. Sir Derek Keppel. Mr. A. P. Jones. Mr. Wilfrid Pascall.
Mr. Harry L. Verney. Mr. S. E. Perkins. Lady Bertha Dawkins. Mrs. Wilfrid Pascall. H.R.H. Princess Mary. Miss Joan Pascall. H.M. The Queen. Mr. Sydney W. Pascall.

H.M. THE QUEEN AND PRINCESS MARY VISIT THE CHOCOLATE FACTORY OF MESSRS. JAS. PASCALL, LTD.

tend to encourage the manufacture of cocoa and chocolate within the Empire as the possession of leading engineers to produce the necessary machinery and appliances at our own doors, I hope that the Congress will have a record gathering when that paper is read. The subject interests the producer abroad quite as much as the manufacturer over here, as the better our machinery and the more goods we turn out, the more raw cocoa and sugar shall we need to buy. Again, the keener our competition and the more we tend to oust other countries in the world's markets when it comes to selling the manufactured goods, the more will our competitors want to go ahead also to maintain their own trade. Thus such a paper will trebly benefit producers.

Coming to production, I have been trying to secure the Lagos figures to the end of the year. Have they been published anywhere yet, and if not, why not? The local *Gazette* (the Trade Supplement of the

cause of this decrease. From all we have heard, West Africa has had more than its share of shipping facilities. It cannot be, therefore, that the cocoa was left behind. We expected at least 30,000 tons to be shipped from there in 1920, but in face of the above, unless the December exports equalled those of the previous eleven months (which is extremely unlikely) there will be an important shortage in the Lagos exports during 1920.

Moving to the Gold Coast, the shipments from there during January came to 12,142 tons, making 38,970 tons for the four months, October-January, against 63,256 tons for the same period in 1919-20. As with Lagos, therefore, this crop is both late and behind. In March last year 21,044 tons were shipped, and in April 15,555, making the substantial total of 100,000 tons in seven months. Think what a lot of leeway the present crop has to make up if it is not to be left behind. Think also of the state of the already dead

market were Accra suddenly to wake up and start exporting sufficiently to make up these important deficiencies between now and July.

San Thomé's movements are also difficult to ascertain. I have tried to obtain the figures without success so far as reliable data are concerned. I believe that Lisbon received about 17,000 tons during 1920, and that another 6,000 tons went direct to distributors. This combined quantity—23,000 tons—multiplied by 16 bags to the ton, makes 368,000 bags, which is about San Thomé's present output, if you allow for what may be detained there awaiting shipment as compared with their accumulations at the end of 1919. The great point that needs to be ascertained is what the maximum output to be looked for from San Thomé and Principé amounts to so far as the estates are concerned, whether the cocoa is shipped or not. I put this at 400,000 bags to-day, with a tendency to drop off at least 5 per cent. per annum from exhaustion, pests, lower rainfall and inadequate attention due to insufficient and uncongenial labour. If my percentage proves too low in the long run, it would be due to the last cause, i.e., absence of suitable and willing labour. If my 5 per cent. shrinkage per annum proves correct, we must only expect 326,000 bags from these two islands in 1925 and 254,000 bags in 1930. Of course, some years may pull up and some go flatter than ever, but working out the coming ten years' average production, I believe it will not exceed 321,000 bags per annum, and may go below, especially towards the end, on account of labour trouble with the probable output mentioned in five and ten years' time.

Coming to current events, the market was hopelessly flat until the end of last week (March 12th), when the welcome news spread—confirming vague rumours—that Grenadas had been selling up to 54s. For them to sell at all and so get out of the stagnant state into which they had fallen was enough to encourage one to hope for better times; but for some, of course, the pick of the market to realize 54s., when hard-hearted buyers were still insisting that 52s. was their very tallest figure, was indeed good news.

Fair fermented Accras meanwhile have gone back to 39s., against 40s. Really fine Trinidads are scarce over here and should command good prices (comparatively speaking) until more arrive. Their crop, already late, seems in no hurry to make up for being so, and during the four months, October-January, this country only received 1,845 bags and France 22, against 16,542 bags sent to America. With such insignificant receipts and then mostly collected kinds, 68s. to 70s. for fine marks is anything but high. Of Guayaquils I have no sales to report; receipts for the first half of January were 38,964 quintals, against 34,274 last year; the London stock figures further on show us to have 66,562 bags on hand, which cocoa seems as little in demand as the 33,348 bags at the tail-end. Should anyone, therefore, start to try and further depress the London market by talking of our large stock, it would be as well to point out that 100,000 bags are more or less out of it, for so long as the demand remains as it is—on the verge of extinction—these two items are likely to be ignored. If Ecuador cocoa receives any attention to speak of, it is to abstract a parcel of really fine summer Arriba at a price that is high

enough to be misleading in these days, so I will not mention it.

London Stock, February 12th		1921 Bags	1920 Bags	1919 Bags	1913 Pre-war
Trinidads	...	23,523	23,148	16,640	3,561
Grenadas	...	22,759	17,010	12,881	6,526
Other W.I.	...	9,247	8,954	6,746	3,824
British African	...	12,162	31,087	47,006	9,576
Portuguese African	...	1,462	15,368	10,314	7,556
Cameroons	...	1,378	1,378	476	7,769
Ceylon and Java	...	22,017	10,269	16,124	16,855
Guayaquil	...	66,562	19,593	34,892	10,730
Bahia and Brazil	...	1,045	132	1,056	3,462
Other foreign	...	33,348	10,587	2,987	8,223
Totals	...	193,503	137,526	149,122	78,062

The stock at Havre shows an increase, as during February, only 14,218 bags were delivered, against 23,217 received, of which 16,700 were Accras and 4,400 from Bahia. Here are the totals and current values, with corresponding rates of exchange:—

Havre, February 28th		Stock Bags 1921	New York \$3.87 Paris Fcs. 54. Value Fcs.	Stock Bags 1920	New York \$3.40 Paris Fcs. 48.35 Value Fcs.
Pará	...	8,211	145 to 160	8,022	350 to 365
Bahia	...	44,641	118 „ 145	22,300	325 „ 355
Venezuela	...	22,973	175 „ 280	17,501	335 „ 450
Trinidads	...	39,478	167 „ 170	13,657	330 „ 350
Grenada & O.W.I.	...	10	120 „ 152	2,380	315 „ 350
San Thomé	...	36,788	107 „ 142	16,907	300 „ 350
San Domingo	...	43,960	107 „ 115	164	315 „ 330
Haiti	...	36,208	90 „ 115	14,382	265 „ 300
Accras	...	41,620	119 „ 122	42,912	300 „ 305
Guayaquils	...	10,746	175 „ 210	40,715	370 „ 400
Others	...	25,519	—	3,254	—
Totals	...	310,154 bags		182,194 bags	

On March 12th exchanges had shifted as below, according to the *Observer*:—

	£1	Value of
New York	\$ 3.91	= £0 16 0½
Paris	Fcs. 55.07½	= 2 3 8
Brussels	Fcs. 52.52½	= 2 1 8
Holland	Gs. 11.36½	= 18 10
Germany	Mks. 245½	= 12 0 0

Although, as I am about to show, the total stock in the U.K. on February 28th was above that of last year. The receipts during January and February up at Liverpool show a marked falling off to nearly one-half of last year's, say 182,701 bags against 317,693 bags last year and 193,166 bags in 1919. Against this, her deliveries were very heavy, 122,929 bags against 29,822 only last year and practically nothing (846 bags) in 1919. London runs on rather different lines with very little increase in exports. During the first nine weeks, ending March 5th, we received 35,293 bags against 58,040 last year, and delivered 30,072 bags for H.C. against 45,824 bags in 1920, exporting 16,355 as compared with 13,660 bags last year. The prize for big business, therefore, goes to Liverpool; let us hope, as we have a nice assortment of West Indian here in London, nearly 60,000 bags, we shall have some more thousand-bag sales to report soon, like the one just completed.

The Board of Trade figures continue to depress one.

As a writer in the *Confectionery Journal* points out, they will continue to do so as long as a penny bar of chocolate cream is priced at threepence even in popular shops. We are not all trade unionists unfortunately, so cannot afford such prices and thus—down goes the consumption. During February the U.K. received only 6,325 tons against 11,462 tons last year; 3,907 tons went into Home Consumption against 4,620 tons 1920, whilst 1,165 tons were exported against 2,230 tons. This makes the two months add up as follows:—

Raw cocoa only			Tons		Tons		Tons		Tons
			Landed		Del'd H.C.		Exported		Stock, Feb. 28th.
1913	...	...	8,229	...	4,978	...	1,427	...	10,950
1919	...	...	24,071	...	9,733	...	Nil	...	36,800
<hr/>									
1920	...	...	20,456	...	10,377	...	8,337	...	42,450
1921	...	...	13,765	...	8,121	...	2,682	...	53,550
<hr/>									
			Decr. 6,691	Decr.	2,256	Decr.	5,655	Incr.	11,100

Bordeaux showed a stock at the end of February of 111,926 bags against 103,702 bags in 1920. The market there seems very flat, with two sellers, according to one correspondent, to the ghost of one buyer in the past. Liverpool on the whole seems to have been fairly busy on the basis mentioned, 39s. for fair and 37s. for medium, up to 41s. for good fermented. Some f.a.q. has been cleared out "well below 30s."; they are lucky to be quit of it. Germany and Holland are quiet, but mention was made of a demand for Java and similar fine cocoa. I hope it will spread to Ceylons over here. Antwerp is quiet after a little spurt and speaks of inquiries for fine Accra at 42s. 6d., but cheaper kinds are not wanted.

Planters want to keep an eye on the world's sugar markets. The price may advance on account of increased demands. With cocoa already so difficult to sell, such an addition to the cost of the manufactured article in the factory or for the powder at table would be particularly unfortunate. Sellers have grown so used to put up prices against the public on the slightest pretext that an increased price of sugar, if put on to the actual consumer, will tend to still further shrink our consumption of cocoa, since it already keeps low through the cost both of powder and the sugar needed to make it palatable.

Latest news items show that stocks in London moved to 190,951 bags on March 19th, 3,287 bags (including 1,935 West African) being received and 6,800 delivered. No Trinidads or Grenadas came in, but nearly 2,500 bags went out. It would seem as if Accras had sagged a little, as now 38s. seems the general price for fair fermented. Really superior Bahias continue scarce; some sold at little time back at 62s., whilst 60s. and 58s. have been paid for the remainder.

It would be wise to put Grenadas at 48s. only for good marks, although the finest have been sold at 52s. and 53s., but not in long lines. On the other hand, some six to seven thousand bags have probably been sold since our last issue, and whatever price was realized for the bulk, such a clearance leaves us much more fit to handle the new crop as it comes along.

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A Monthly Journal devoted to the Interests of those living, trading, holding property, or otherwise interested in Tropical and Sub-Tropical Countries.

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The Coming Rubber and Tropical Exhibition and Conference, Royal Agricultural Hall, June 3rd—17th.

(See advertisement facing p. 53.)

WE had hoped to give a complete list of papers other than those on rubber to be read at the Conference, but it has not been possible to do so. The weather, the political uncertainty, or one thing or the other has hindered those over here on leave from coming down to bed-rock titles for publication. Papers are promised and will be given, as discussed in the March issue, but that is all we can say even this month. We can now add that arrangements are being made to induce the representative of a large chocolate confectionery firm to discuss raw cacao prospects generally, and where, when and how we can look for increased demands. It is hoped that Australasia, in the widest sense, will be included in such a paper, and also India and the Far East. If this proves correct, both sugar and cacao men will be interested.

M. Edmond Leplae, Director of Agriculture for the Congo, and always a prime favourite at all International meetings, is down to discuss the cultivation of three crops: oil-palms, Hevea rubber and cotton in the Belgian Congo. We hope to meet Dr. P. J. S. Cramer and hear what he has to say on Hevea in the Netherland Colonies; Dr. A. H. Unwin is down for a timber paper; and vegetable oil men are wondering what Dr. Prudhomme, whose book on coconuts (in French) is such a prime favourite, will have to tell us. Dr. Rutzers will, we hope, talk of oil-palm cultivation in Sumatra. (Probably this crop and the way its cultivation is extending out East will figure very prominently, both officially and unofficially, in the programme. There is so much we all want to know; there will be a good number to satisfy our curiosity whilst the Conference lasts—but not after.)

From correspondence received, we understand that there is every evidence of this, the 1921 Conference, being even more largely attended than its predecessors, recent work and, through that, the fresh expert knowledge ready to be placed at the disposal of those attending must, of course, exceed anything done before. All the "old favourites" are there, and it is a long cry back to 1914, so it is easy to realize what these supermen of tropical science have absorbed in the meanwhile and are now waiting to share with us.

Thanks are due for the titanic work being done by Miss Edith A. Browne and also by Miss Rothschild, her indefatigable A.D.C., to put the many links

together. It is not easy to forge these links, but after that is done, it is both troublesome and irksome to complete and finish off the chain. That is what these two ladies are now doing—it is no easy task. Professor Wyndham Dunstan has thrown much energy also into marshalling everything into "battle array," and then of course, there is "Our Friend" this month. When the roll is called and the Conference starts, our sympathies will be with those unfortunates who would have been present and could not get away. Those who can come and do not, will need no punishment; if really interested in the tropics, the amount of information and chatty news that they will allow to escape them will be quite enough punishment. Meanwhile do not forget to look up the printed *Transactions* of the 1914 Conferences, both the International one at the Imperial Institute, and the equally important but more specialized one at the Agricultural Hall in connection with the last Rubber Exhibition; you should do so to compare with what you will be told in June.

Vegetable Oil Notes.

MINERAL OIL FOR FUEL ON STEAMERS.

WE have on several occasions called attention to the possibility of oil-fuel experts turning to vegetable oils to augment supplies immediately available and especially to spin out the mineral fuel or to get people used to vegetable oils and to perfect the apparatus needed for its use, before the world runs dry (commercially speaking) of coal and mineral oil for steamers' use as fuel.

If any country could use vegetable oil as a fuel, it would be the Japanese, since they could attract almost endless supplies at a low cost for transport and possess the knack of adapting machinery to do what they want, instead of the other way round. The other day we heard from our Yokohama friends that shipowners in that country were paying greater attention to oil-burning ships and were fully alive to the possibilities of vessels burning both coal and (mineral) oil, and such ships are meeting with increased favour. The Osaka Shosen Kaisha recently ordered two ships of this kind from England and bought one and ordered another from the Mitsubishi shipyard. All these ships are of the 10,000 ton class. Those ordered from England are to be completed next spring, and they will be operated on the New Orleans run. The company contemplates building four more similar ships. Thus does the demand for fuel-oil on board steamers tend to increase with great strides and so help to bring us nearer and nearer to the time when you can "tap" for (mineral) oil as much as you like and will not get a drop. Russia or Roumania will be as dry as America and what then—can vegetable-oils be used instead? There are those who answer "Yes."

THE "PAN-AMERICAN MAGAZINE" ON THE MATTER.

In its March issue, p. 236, our New York contemporary, when discussing vegetable oil as a motor fuel, claimed that since it seems to be accepted by geologists generally that the world's supply of mineral oil is

limited—perhaps already on the wane—and that no more is in process of making, it is with the keenest interest that we hear of successful experiments with vegetable oil as an entirely satisfactory motor fuel.

The oil used in these experiments has been palm oil, well known in the commercial markets as one of the most desirable ingredients of the nut-margarines. The tests have been carried on in Brussels, with a view of making use of palm oil, if practicable, as motor fuel in the Congo. The difficulty of transporting mineral oil to the Congo, and its high cost when delivered,—about \$1.40 (5s. 6d. or 6s.) per gallon—made the finding of a substitute a great desideratum. And, as palm oil was one of the products of the Congo, and could be had there for about 20 cents a gallon, the reward for its successful operation was alluring.

The calorific value of palm oil varies from 75 to 80 per cent. of that of mineral oil; therefore, from one-fourth to one-third more must be burned to get the same power.

WILL PALM OIL REPLACE PETROLEUM?

In face of the above opinion, arrived at, one can almost say, whilst the idea generally is only at the sprouting stage, if indeed the seed has yet been planted, one cannot help wondering how long it will be before we hear of palm oil, groundnut, coconut or similar oil permanently taking the place of mineral oils when the latter become scarce and costly. Still quoting the *P.A. Magazine*, we are told that experiments have proved that palm oil will work perfectly in a certain form of motor of a semi-Diesel type without any change, in the ordinary Congo temperatures. In Belgium, however, where the winter temperatures are below the solidifying point of palm oil, an accessory is necessary to liquefy the oil. Further, in Belgian winter temperatures it has been advisable to start the motor with petroleum, and when it is well warmed up to substitute the palm oil.

The experiments have shown that palm oil burns completely, leaving no residue. So far the trials have been made chiefly on motor boats, but they are being extended to tractors and industrial motors. In July, 1920, the Belgian Ministry of Colonies initiated a prize contest for tractors operated on any of the vegetable oils produced in the Congo. Only one contestant appeared—an evidence of the lack of research along this line.

THE IMPORTANCE OF THE MATTER TO THE VEGETABLE OIL INDUSTRY.

With butter showing signs of getting back to popular prices and therefore of pushing margarine off many tables, this promise of a possible demand on a scale that is at present beyond one's powers to estimate, for vegetable oils to augment supplies of coal and petroleum as fuel, and finally to replace them altogether, must not be lost sight of. It may not come in our time, but as with the planting of trees, we must give the matter attention for the good of those to come. As it is, the present availability and the possible demand for vegetable oils as motor fuel is of immense importance to tropical America and all centres producing vegetable oil on a large scale, par-

ticularly at localities where mineral oil is wanting, and can be delivered only at a prohibitive expense. Doubtless already there are vegetable oils in these localities which would prove at least as efficient as palm oil. And, with the passing of petroleum, an eventuality already being discounted by the geologists, the practically unlimited production of vegetable oils for motors, if not for use on steamers, may easily become one of the most important industries of the near future.

WHEN THE WORLD WILL GROW ITS OWN FUEL FOR DAILY USE.

This reminds us of what was said in Chapter XX of "The Rubber Industry of the Amazon," p. 311, which claims that, "although India turns out large quantities of ground-nuts, Brazil would do well to plant some, especially in the near future, when vegetable oils will be used as fuel in internal combustion engines, whereby the most inaccessible backwoods up the Amazon would become quite independent of mineral oil, coal or wood fuel, because it could generate all the power required for a sawmill, farm machinery, &c., and even to run the boats up and down to Manaus, Para, &c., with the help of vegetable oils. By means of a machine recently placed upon the market and apparently giving satisfaction, gas for lighting, cooking and heating, in the same way as coal gas, can also be made from any kind of oil—mineral, animal or vegetable—so that my idea of planting oil-yielding crops extensively can apparently help to light the houses and cook the food as well as drive the machinery needed."

COCONUTS IN INDIA.

The other day we had to answer an inquiry about Travancore which caused us to refer to the *Agricultural Journal of Pusa* for July, 1919, and especially to an excellent article in it by Mr. Kunjan Pillai, M.A., B.Sc., &c., Director of Agriculture and Fisheries, Travancore, on "Coconuts—the Wealth of Travancore." Having done so, we would remind our readers of the existence of this account of the origin of coconut cultivation in Travancore, which we considered to be one of the best of its kind, especially where it traces the coming of the coconut to India from Ceylon in about the fourth century A.D. The knowledge of such movements is often invaluable to those who are striving to get to the bottom of some knotty point or the other.

THE UNCERTAIN YIELDS OF DWARF COCONUTS.

Since it has been suggested that the uncertain returns from the dwarf coconut palms, or rather that the certainty of their giving very small yields during some years, is due to root exhaustion, it is interesting to think that with skilful manuring such erratic yields may eventually be improved out of existence, since it is claimed that the crops of the fat years followed by the lean ones in the English orchards can be equalized. If this can be done over here with fruit, it may be found possible to improve, to equalize and increase the outputs of the dwarf coconut palms in the tropics as well. If, as we are told, the abundant crop of the fat year or years proves so great a strain that

the reserves of plant food become over-exhausted and so the palm or tree cannot put forth a second good crop without a rest, it appears but reasonable to claim, based on actual experience, that since such exhaustion can be prevented with fruit trees by appropriate manuring, why not with dwarf coconuts? As we continue to receive letters inquiring about the yield of the dwarf palms, it is apparent that some of our readers have yet to learn that a second edition of Messrs. Munro and Brown's book has been published, and contains an Appendix on Dwarf Palms, their history, yields under cultivation and general behaviour (price 16s. post free).

In manuring fruit trees, *Country Life* told us some time back, in 1918 or 1919, it was necessary to bear in mind that the blossom buds are formed the year before they come out, that is to say, during the period of bearing or shortly afterwards. Consequently, they are forming at a time when the trees are being exhausted or have been exhausted, therefore a liberal supply of easily assimilable manure must be placed at the disposal of such trees during this period. Liquid manure, wood-ashes, basic slag and lime should be used, taking into account that (with fruit trees) a superabundant supply of nitrogen might lead to a production of wood instead of flower buds, and that phosphates assist in developing the flavour of the fruit. All of this serves to emphasize the essential use of manures in orchard cultivation if the best results are to be attained, and since this is so with fruit in England, cannot similar results be obtained with dwarf coconuts in Malaya, remembering always that with other countries you have other crops and conditions, and so other treatment is necessary?

PALM PRODUCTS IN CEYLON.

The following extract from a letter to one of our subscribers may be of sufficient interest to our readers to warrant its introduction among these notes:—

"We are not able to say what the total number of bearing coconut trees in Ceylon or their yield was in 1920, but taking the exports at 600,000,000 nuts, and dividing this at 40 nuts per tree, would mean some 15,000,000 tress for export alone, plus—we cannot say how many for home use—and, of course, there must be many trees coming along or 'off colour' at the time. These calculations are based on a report on the abnormal increase in palm products from Ceylon during 1919, on account of the war. From notes made on that report, calculating on the basis of the number of nuts required to produce the quantities of copra, oil, &c., exported, the exports for 1919 represent a total of 929,190,745 nuts. The pre-war average for five years represented 569,841,250 nuts, and the average during the war 549,913,000 nuts. Crops during 1919 were usually short, as a result of the long drought of 1918. The prospects for 1920 are good, especially as full manuring programmes are now being resumed. Considerable extensions are being carried out."

Probably the 1920 figures are available for comparison with the above, but we have not got them with us at the moment. Readers must remember that much produce cropped in 1918 was not exported until the following year and so caused abnormal exports in 1919.

APRIL VALUES.

COPRA PER TON—SPOT.

		London				Ceylon		Marseilles		Hamburg and Rotterdam.	
		F.M.S.				F.M.		F.M.S.			
		£	s.	d.		£	s.	£	s.	£	s.
April	18	27	10	0	to 28 5 0	28	5	25	5	28	5*
	16	27	15	0	28 5 0	28	5	25	15	28	5*
	14	27	10	0	28 5 0	28	0	26	10	28	5*
	13	27	5	0	27 10 0	28	0	26	0	27	10*
	9	25	12	6	27 5 0	27	5	25	0	26	15*

COCONUT OIL PER TON.

		Ceylon				Cochin			
		Spot		For shipment		Spot		For shipment	
		£	s.	£	s.	£	s.	£	s.
April	18	46	0	43	10	50	0	49	0
	16	46	0	43	10	50	0	49	0
	14	42	0	41	0	48	0	44	0
	13	42	0	41	0	48	0	44	0
	9	41	0	40	0	48	0	44	0

OTHER OILS PER TON.

		Castor Firsts		Ground-nut Crude†		Palm kernel Crude Hull spot		Cotton seed Crude Egypt	
		£		£		£		£	
April	18	50		32		40	10	28	
	16	50		32		40	10	28	
	14	50		32		43	0	28	
	13	50		38		45	0	28	
	9	50		33		45	0	30	

* Rotterdam only. Hamburg not quoted. † English crushed, naked.
N/Q—No quotations.

Rubber and Cotton Notes.

THE "STRAITS ECHO" ON MALAYA.

Is Malaya going in for cotton-growing and so supply the raw cotton for tyres as well as the rubber? It would be an excellent idea if this could be arranged. Such a proposal has been laid before the Amazon authorities, when they were urged to encourage cotton planting in those magnificent cotton belts to be found within the limits of Brazil, which is already doing wonderfully well with the crop. Carefully developed cotton estates may yet put, in times to come, more money into the pockets of the public and into the money-chests of the Government of Brazil, local and Federal, than rubber. This can never be so in the Straits or Malaya; no one wants it to be, but one would welcome a widely-spread and successful cotton-planting industry over there to support the rubber planters.

An experiment was made in cotton-growing in Perak, reported the *Straits Echo* a little time back (when discussing the work of the Empire Cotton Growing Committee to make this country less dependent on America for supplies, especially as the U.S.A. shows signs of requiring her own cotton to a greater degree than we shall care to see), and "the experiment proved successful." That was about six years ago, when fortunes were being made in tin, rubber and coconut ventures, whilst cotton cultivation at the time probably offered but little inducement. Now, however, the position is different. . . . The time is ripe for action on an elaborate scale, not only as regards cotton, but many other products.

"Lately TROPICAL LIFE has been dealing with the subject of cotton-growing, and in a copy of that instructive and interesting monthly now before us the

subject is handled in a masterly and convincing manner." Comparing Tanganyika and Nigeria, so favourable for the crop, "it is seen" we are told, "that the climatic and other conditions there bear a striking resemblance to those of Malaya. . . . It is not to be supposed that all parts of Tanganyika and Nigeria are suited to cotton-growing any more than all parts of Malaya are adapted to it, but portions of them unquestionably are." This being so, the sooner such portions are planted with cotton the better, both for Malaya and ourselves.

MR. E. L. KILLICK IN THE LIMELIGHT.

We liked this London authority's article on rubber production in the *Financier* of April 5th, there is much in it that deserves attention and being given a trial, especially as since he wrote it the rubber position has not improved. Rubber, we are told, will remain at a standstill in common with many other markets until an end of the labour crisis is in sight. When will that be? Not just yet, we fear. There are too many growing rich on the misfortunes of the country or living without effort, thanks to the standstill on all sides, to hasten that happy day.

Like others, Mr. Killick is keen on reduced output "by not less than 50 per cent. unless a complete stoppage of production for at least three months was practicable." This proposal was put forward by us a good time ago, but want of confidence in *all* rubber producers, especially those outside the planting rings or association, rendered the total cessation for three months quite useless for checking the rout in prices. But *what if no rubber was shipped for twelve months* from any producing centre, plantation or indigenous?

IF NO RUBBER WAS SHIPPED FOR A YEAR.

If preferred, this drastic step need not be taken at once. It would do quite as well if the start was made on January 1st next. Surely the Governments of the various exporting centres would come in and assist, not only to safeguard their present revenue, derived directly or indirectly through the rubber industry, but even by enhancing the value of the export to increase these revenues. They all seem to need an increase, be they out West or East.

Once the various Governments of all centres, indigenous as well as plantation, could be made to realize how it would help them to help rubber, surely they would join together and pass the necessary enactments to prohibit the export of rubber under any circumstances whatsoever during the months agreed upon. During such a period they would derive no export duty on rubber, as none would be shipped, but there would be the import duties on the heavier values of goods landed, thanks to the rubber selling for more money, and also each Government's share of profits on the rubber being sold as I describe later on. Could such a year's rest be enforced, all sides would undoubtedly benefit, trees, planters, local exchequers, as well as the factories and merchants here trading with the rubber producers in the tropics.

THE OBJECTIONS TO SUCH A PLAN.

All such proposals, even those for three months (or

three weeks) only, are always met with one ever-green objection. How will the estates be carried on if no rubber is cropped and shipped? Our answer is: Far better than most of them seem to be doing now, when the cost of tapping, curing, boxing and transporting the rubber has to be paid for only to further increase the world's stock and lower prices. Of course it must be insisted, this time for economy on the estates just as much as to minimize the smuggling out of cured rubber, that no tapping is to be done. The trees must have a complete rest. They would give you all you give them and more when they are tapped if this were done. In both cases, of course, illegal tapping and shipments will go on. Sheer "cussedness," as well as greed and an incorrigible love in all men (and still more in most women) to do a thing merely because you must not, will always produce some rubber, but nothing to trouble about if the Government and the loyal 99 per cent. work together. When illicit rubber does appear, like whisky turned hair-wash in America, the authorities will know how to deal with it and—stop it.

THE PLAN AT WORK.

Allowing, therefore, for the sake of argument, that no rubber is tapped and that no rubber is allowed to be exported from any producing centre, how would the estates exist? Why, possibly with less trouble and anxiety than they need to keep going at present? They would exist on the proceeds of that 300,000 tons of rubber in the world to-day which no one seems to want at any price. Even at 1s. per lb. all round this would give £33,600,000. Some finance might have to be arranged to help a few for the good of all, but it were ever thus, and ever will be. Surely this is enough and more than enough to run the rubber producing world for a year. Besides, if the world realized for certain that no rubber would be exported from any producing centre for twelve months, do you imagine that the rubber on hand would realize only 1s. per lb. It would soon be at 3s. per lb. and more. Even at 3s. it would give £100,000,000 to the owners at least, and this is where the Governments and their depleted exchequers would come in. We would urge that the estates be allowed to draw 1s. per lb. (to-day's price for the best is only 10½d. rising to 1s. or so later on), and after that, the Exchequer at the exporting centre whence the rubber first came, wherever that may be, Singapore, the F.M.S., Para, Java, India, West Indies, &c., would be entitled to share 50 per cent. pro rata in any value beyond that original 1s. per lb. Therefore at 3s. per lb. the producer would get 2s. per lb. gross and the Exchequer 1s. per lb. Much better surely than at present, with the estates receiving under 11d. per lb. gross. Agreements as to sales should be made, and the price raised each month to a maximum, let us say, of 6s. 6d. per lb. You start at 1s. per lb. and for every 30,000 tons of the world's stock sold sixpence is added to the price. If no restriction were put on until January 1st, 1922, probably the world-stock would be at least 400,000 tons by then. It would be still more, but many estates lacking the ability to produce all they would like to have to throw

into this world's pot of accumulations would be forced to go slow and so the total would fall short.

Take it, however, at 400,000 tons to last a year, this means 33,000 tons a month. Make this quantity the limit for the sales permitted during that period (a month), but in any case, let it be well known that as each month goes, or as each one-twelfth of the world-stock (whichever comes first) passes into private hands, preferably manufacturers' (it will be solely theirs if they are wise), the price will advance 6d. per lb. This means that in January, 1922, the price would run at 1s. per lb. in London or its equivalent elsewhere, in March 2s., July 4s. and December 6s. 6d. per lb. Work out the average price of the 400,000 tons and then tell me if both producers and their Governments, as well as the brokers and dealers, would not be happier under our scheme than they can be otherwise, until the world settles down—goodness alone knows when. Here is no boom, no frenzied run up in values. If you do not buy in March, we will catch you in June, when you will have to buy; possibly that suits you better even if you pay more.

And then there are the trees. What of them? They will score tremendously with the rest, a holiday for a year. Your future crops stored in embryo in the best warehouse ever known, Nature's own. What a brainy idea—if only the planters would act together, or rather if the Governments ruling them would. Perhaps they will, if they are hard up. But is any Government really hard up in these spendthrift days? What does Mr. Killick say?

P.S.—Further particulars on application in writing.

PRICES AND STOCKS.

Coming now to prices, according to Messrs. Lloyd, Matheson and Carritt, these compared as under on April 14th:—

Spot quotations—	1921 April 14th.		1921 7th.		1920 15th.	
	s.	d.	s.	d.	s.	d.
Smoked sheet (F.A.Q.)	...	0 9¾	...	0 9¾	...	2 2½
Crêpe (standard quality)	...	0 11	...	0 10¾	...	2 2½
Para	...	0 11	...	0 11	...	2 3

Forward positions—	Smoked Sheet		Crepe	
	s.	d.	s.	d.
1921, April	...	0 9¾	...	0 11
„ May	...	0 10¼	...	0 11½
„ June	...	0 10½	...	0 11½
„ July—September	...	0 11¼	...	1 0½

Stocks—		Tons		Tons	
Plantation, London	} .. April. 9th, 1921,	65,210	... Apl. 10th, 1920,	20,972	
Para, Liver- pool	... „ 1st, „	750	... „ „	110	
		Total 65,960			Total 21,082

BALATA.

This market continues unchanged. Venezuela block remains around 3s. 3d. to 3s. 4d. c.i.f., West Indian sheet is valued at 3s. 9½d. spot and 3s. 7½d. forward, against 2s. 6d. to 2s. 7d. for good quality Panama block and 2s. 7d. to 2s. 8d. for Tumaco.

Coffee Notes.

WHAT COFFEE HAS DONE FOR SAO PAULO.

IN 1890 the City of Sao Paulo (capital of the State of that name) had but 61,000 inhabitants. At the end of 1920 there were 532,000. This wonderful growth was not due entirely to coffee, but without the foundations laid with the aid of that crop the modern development of the city's manufacturing industries would never have become possible. In 1917 the value of the output of her factories had already exceeded the value of the coffee crop. Two of the largest factories are directly dependent on coffee since, we are told, that they are making bags from Indian jute for shipping the coffee in. Jute of a superior quality to the Indian product is also being cultivated on an increasing scale in Sao Paulo. One day, and we hope it will be soon, Nigeria and East Africa will also be doing great things, thanks to the start given by their coffee, followed probably by cotton, as in Sao Paulo.

COFFEE IMPROVEMENT.

The *Agricultural Journal of Pusa* for July, 1919, reprints (pp. 639-644) the remarks made by Mr. Rudolph D. Anstead, M.A., Deputy Director of Agriculture, Madras, at the Coffee Planters' Conference, which took place in Mysore during July, 1918. Although this is nearly two years ago, Mr. Anstead's remarks, owing to the war, did not receive the amount of attention that they should have done, and as we are often asked questions on how to bring about, or how to start bringing about, improved strains of coffee, it may not be amiss to quote the following from the last letter we wrote to a subscriber in British East Africa on the subject:—

Each centre, and each estate in that centre, must experiment for itself; there is no cut-and-dried general rule in coffee improvement schemes. One can only watch proved successful work done elsewhere and then start on similar lines on your own land, making every allowance possible for changed conditions. Mr. Anstead very rightly claimed that the work of improving coffee, making new hybrids, &c., is long and tedious, and so is scarcely suited to estate conditions. In new lands out in East Africa, however, until it would pay coffee planters to run co-operative, or the Government to establish local experiment stations with an expert in attendance, those starting to plant coffee, or to improve that already planted if it does not give entire satisfaction, may have to run their own grounds. It may be tedious and troublesome, but for all that, try and establish one if in any way possible, for it pays in the end.

Meanwhile much improvement can be brought about by persistent seed selection, starting with the best tree on the estate and, if more than one, which is probable, all the better. Choose those you fancy, judge by their yield under *all* circumstances; note which do best under adverse circumstances; give points for shape and habits (good habits), for freedom from diseases and insects. Some trees are always better than others, so get your seed from these, and when those seeds become mature trees, repeat the process, certainly a slow one, but time passes.

HOW TO SET TO WORK.

It is impossible to say much here, but having

"spotted" your trees, you must isolate them. Here is Mr. Anstead's plan: "Having chosen your tree or trees, cut out those around them to give the ones standing ample space, light and air; then make arrangements for netting them when they are in flower. To do this, four stout posts should be put in the ground at the corners of a 14-ft. square, each post about 10 ft. high, and a mosquito net made to fit over them so as to completely enclose the whole bush. It is a good plan to sew a valence of stout cloth round the bottom edge of the net which can be laid on the ground and have earth piled on it to keep the net steady and prevent its being blown about by the wind. The blossom set under this net must be self-fertilized—an important item, for if allowed to set in the open you have no control over the pollen used, which may come from the worst tree on the estate. You believe you have one of your best trees, so you want to keep it best, and as seed self-fertilized will come true to a large extent and reproduce the characters of the parent tree, it is best to work on the lines indicated. As soon as the fruit is set the net may be removed and stored for future use. Work should then be done in the nursery, but that must wait for the next or a future issue, it takes too long to outline here.

We would add, however, that mosquito netting must be most expensive in these days when anything in the shape of manufactured cotton is charged so high, whilst the quantity needed even for one tree at pre-war rates was a thing not to be sneezed at. To carry on a series of experiments just now would, therefore, need a large quantity of netting when it is very costly. Those with whom money is a consideration at the moment, no matter what profit may await one in the future, have to think of this. The first thing to do, therefore, even before choosing the trees to be netted, is to ascertain what the net itself will cost.

RECEIPTS AND PRICES.

Coffee receipts now amount to 12,137,000 bags against 5,912,000 last crop, 7,628,000 in 1917-18 and 13,162,000 in 1916-17.

East Indian kinds have been in good request at steady rates, although we understand the recent extreme prices have not been repeated. Nairobi are considered to have realized full rates. Fine colory Mysore sold up to 89s., good middling to 99s. 6d., and fine middling from 105s. to 112s. 6d., fancies at 120s. to 131s. 6d., peaberry up to 151s. 6d. Fair to fine Coorg went at 91s. to 102s., peaberry up to 111s. Middling Travancore touched 78s. and bold good to extra bold 87s. to 96s. Middling to good mid. Nairobi fetched 79s. to 87s. 6d., fair good greenish and colory 100s. to 109s. 6d., peaberry up to 97s. Good ordinary Uganda went up to 54s. 6d., good mid. to fine mid. blue Costa Rica 101s. to 118s. 6d., bold colory up to 117s., fancy colory 119s. 6d. to 140s., peaberry 86s. 6d. to 156s. Good middling greyish Colombian went at 86s. to 88s. 6d., and bold greyish Vera Paz 94s.

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Economic Zoology.—No. 3.

Our motto: "Utilization not Extermination."

THE MOVEMENTS OF THE OSPREYS IN VENEZUELA.

REVERTING again to the *Boletin of the Caracas Chamber of Commerce*, we are told, on p. 834-835, that in March and April it is very dry and the ospreys scatter across the plains (*llanos*, as in Argentina they are called *pampas*). Many emigrate to quite distant centres until in May, when the rainy season commences, and then the new feathers begin to appear. About mid-September these are at their best and soon, at the end of September and through October, these are shed, until by the middle of November all the best feathers have gone, and then comes January again, with lack of rain and so lack of food, and the birds, like the Bedouins, migrate elsewhere. We have already called attention to the advantage of establishing farms, because the young birds are much given to fighting each other, and so care can be taken to prevent them harming themselves in this way. We have always felt that the stories told of maimed and slaughtered young birds have been due to this. Those ignorant of the facts, or wishing to throw mud at the trade, would have us believe that the hunters cause the mutilation and death of the young birds, whereas it is their own pugnacious habits. This is an important fact to be remembered by all those who wish to see the osprey preserved.

Some of the *garcelero* owners have keepers all the year round (in Venezuela), others concentrated their efforts to protect their birds from July into January. Especially careful watch is kept during August and September, when the young are hatching out and being reared; again, from October to December, whilst the feathers are being collected, it is equally necessary, if a profit is to be shown, to keep illegal collectors at a distance. Two collections a day are made, one in the morning and one in the evening.

After collection the feathers are sorted and graded as to length and appearance, tied up into small bundles, and exported in small zinc boxes. As the male bird does not sleep near the nests, their feathers—which are considered to be of better quality than the females'—can be collected apart from the "bachelor" quarters, where these birds go to at night.

Thanks to such care and attention, it is claimed that the Venezuelan *garceleros* have gone ahead and progressed in all ways. The greater sense of security to the owners and that the value of their property—if not abused—will not only remain but increase, must and will encourage the present owners to persevere, and will draw new men into the business. Co-operation is already necessary to safeguard the industry, to compare notes as to the best means to further increased production (there must be no inter-trade jealousy), and also to regulate sales and prices at purchasing centres. Already we are told the output in some cases has been doubled, which shows that far from the birds tending to become scarce, they must instead be increasing rapidly. As the State receives an annual tax—Excise Duty—in proportion to the yield of the *garcelero*, the authorities are directly interested in keeping up this increase and generally in helping the legitimate breeder and trainer in every

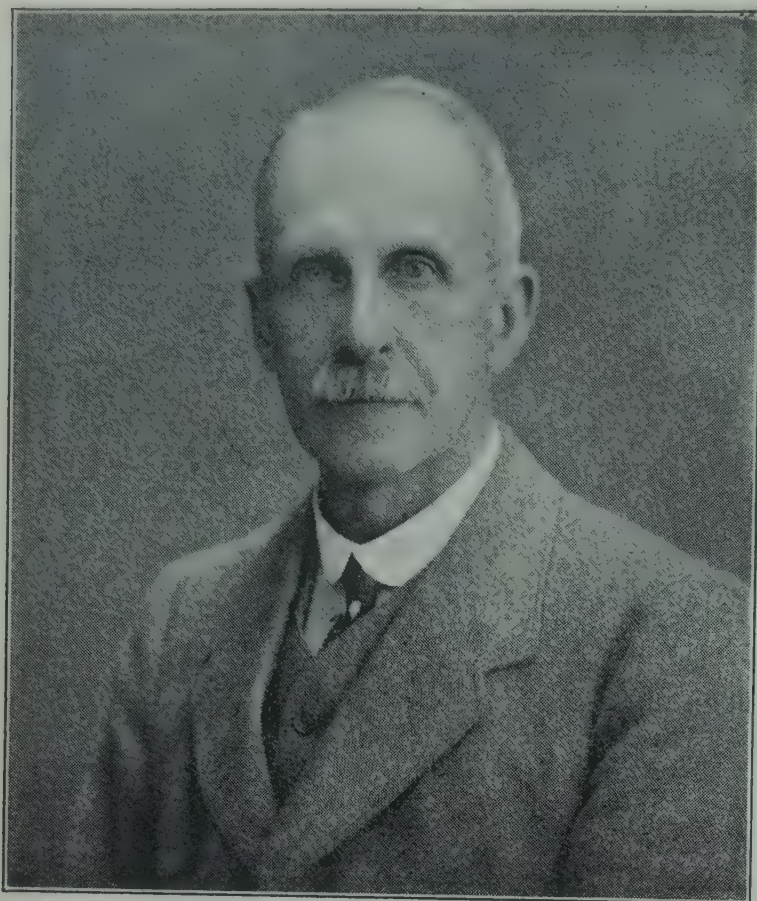
way possible. Poached goods mean losses both to owner and Government; little wonder, therefore, that both deal harshly with the poacher when caught.

Prizes have been offered in France, and proposed by well-wishers for the safety of the ospreys elsewhere, to encourage the establishment of osprey farms in the tropics and sub-tropics, where the birds will thrive and multiply. In previous issues we have discussed such farms very fully. Mr. Frank Finn at one time was writing a special section on the subject, and since then our book on the Egret (or aigrette in its manufactured form) has been widely read, and if severely criticized by some, has proved extremely useful to those seeking to preserve these and other tropical birds for all time, or until the opening up of the tropics, South America in particular will cause them (unless we can breed them on farms) to become too rare to be of use in the millinery trade. But Brazil and Spanish America will not (unfortunately) be developed at such a rate, and when they are, no doubt wise men will have overcome prejudice and founded sanctuaries for the birds whose feathers and skins are wanted, and so prevent them following the Dodo to wherever that bird has gone.

WE have to thank our friends in Colombia (Republic of Bogota) for a copy of their Directory of Colombia, which we consider fulfils a long-felt want. In the next edition it may be possible also to put the merchants and planters under separate headings and even discriminate between them according to the chief article and crop in which they are interested. What, however, must be done is to put the names in alphabetical order according to the surnames and not according to the first Christian name, as has been done in this instance. We have seen many directories in all languages, but never one with the names placed in the order described in this work.

Also there is no index. To have one is most necessary, and as there are a good many towns of the same name the index should have an alphabetical list of the departments (if the directory is to be of real use to non-Colombians), and then of the towns in those departments, with the number of the page on which they will be found with (the alphabetical) list of their chief citizens. It should also be shown why some of the towns are printed in large type and some in small. As well-wishers for the future prosperity of Colombia, whose undeveloped potentialities we know to be immense, we would like to see any explanatory matter of the nature suggested printed in English and French as well as Spanish. At the time of publishing so useful a work to do this would be no trouble, whilst, when done, it would make the directory as plain to English, American or French traders (and all the other nations since everyone knows either English, French or Spanish) as it now is to a Colombian.

We congratulate the compilers of the book as it stands. It would not be easy to publish such a list of firms in London, it must be very tedious to do so in Latin America. We trust no one will mind our suggestions and criticisms, which are only offered to help forward the coming commercial *rapprochement* between Colombia and ourselves, and through that the rapid development of the Republic's latent wealth in many ways.



Tropical Life "Friend."—No. 190.

DR. JOSEPH TORREY, A.M., PH.D.

Chairman of the approaching International Rubber and Tropical Agricultural Conference.

WE are not quite sure what "A.M." stands for; maybe they are the initial letters of *Amicus mundi*, or perhaps of some Red Indian name equivalent to "nice things said behind your back," which seems to be the general opinion of this man, known to so many, in more places even than are mentioned within our pages during the course of a year. And yet, when you sum up the minutes you have had Dr. Torrey to talk to they probably amount to very few. The truth is, you do not need long to "size up" the character of the man in front of you, who stops in the midst of a hundred little duties to greet you, to ask a question as if he had been working with you for weeks, and then to disappear, leaving you still anxious for more of his company. Thus, we suppose, it has come about, since all are treated the same way and think the same of Dr. Torrey, that you say behind his back what you think of the man, who does so much so easily, and is never in a hurry or seems flurried no matter how rushed he may be. How does he manage it?

"Our Friend" avoids getting into print, but we remember in an old issue of the *India-Rubber World* being told that Dr. Torrey, after first making his bow to this world at Hardwich, Vermont (Washington's own country), in 1862, and graduating twenty-two years later at Bowdoin College, took to instructing the then rising generation in chemistry at Iowa College. Then, winning the Morgan Fellowship in 1890—whilst we were having our first round in the tropics—he went to Harvard and secured his Ph.D. in 1896. History

does not tell us anything about that A.M. of his however. "Who's Who in the Rubber World" puts the letters after his name, but gives no intimation as to their origin. Altogether the information given in that otherwise most useful publication, reminiscent of the late Mr. Manders, is extremely "pingey" concerning this head of two Rubber Conferences and co-editor of the published reports of those meetings. So "pingey" indeed that the man discussed might have just dotted down the dates, and these were put in by mistake instead of the couple of pages that should have been there to tell us all about him had he had his due.

In 1900 Dr. Torrey went to the Diamond Rubber Co., at Akron, to which works Dr. Spence (an old "Friend" of ours) also went later on. In 1902 this country was fortunate enough to secure his services, thanks to the North-Western Rubber Co., of Liverpool, having grabbed him with their elastic arm (although only made of reclaimed rubber) long enough to stretch across the Herring Pond and pull him into their works on this side. Not only did it pull him in, but it has kept him there ever since, until enough years have passed for Dr. Torrey's son to grow up and join up to fight in the Great War.

All these facts are to us lost in the background compared with the work done and help showered on us by the part Dr. Torrey has played in leading rubber production and tropical agriculture generally along the right path as Chairman of the 1911 and 1914 Conferences, and as he will do again in June as chief of the meetings to be held this year. In these days when every man or woman strives to get into print—even if they have to get married or divorced to do so—it is more than pleasant to meet men like Dr. Torrey (who knows, as we do, that Science and the Arts claim and hold many such men and women) who are satisfied to carry you along and help you to do the things that count just for the love of doing them, and because they make you feel the world will be better for your (and their own) efforts. In writing these notes as the clock approaches the hour of 10 p.m. on April 15th, when the great strike with an unfathomable future ahead of it is expected to take place, all of us more or less feel inclined to beat the big drum and make a noise and racket, just to jangle our nerves together to keep going a little longer, and then you remember the quiet workers who stick it, who have stuck it, and always will, no matter what others are doing outside. Yet they must have nerves like the rest of us, but if so, they keep them composed until yours also settle down and run smooth again, and you get on with your work all the better for these quiet men who do so much, are seen and heard so seldom, but who lead you on because you know, come what will, they are always there at their post, working to make the world go more smoothly because of their efforts, and out of very shame you stick to your job too. We fancy Dr. Torrey is, and always has been such a man. If you doubt this, come along when the Conference is on and judge for yourself; you certainly cannot lose anything by being temporarily under him any more than Mr. A. H. Marks did who, thanks to the doctor's instruction at Harvard, became a leading man in connection with the alkali process of reclaiming rubber.

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The Managing Director and Editor of "Tropical Life" will be pleased to consider the printing and publishing of useful technical works on Tropical Agriculture, Medicine, or other subjects dealing with the development of our Colonies and the Tropics generally, as well as similar books dealing with Russia, Japan and the East, whether the books are to be published in English or other languages.

Tropical Life.

APRIL, 1921.

Improvement of Old Tea Estates.*

By J. W. MCKAY.

FLUCTUATING markets, rises in costs of production, and modification in agricultural ideas have combined to force agriculturists in all parts of the world to take stock of their position, and to reconsider their methods of working.

In common with others, the tea planter has to face

* We deem ourselves fortunate in having secured this article from Mr. McKay, one of our most experienced agricultural authorities in India, as can be seen by the way he puts his facts together and draws deductions from them as to what has or what will happen to the tea-producing industry as a result of the War. On this side as with all goods, especially those dependent on tropical produce for their raw material, consumption is below zero, and so prices to the producer are altogether inadequate, but as we pointed out in our leader last month, when the thaw sets in and the ice of unemployment, restricted outputs, and retail prices at least 50 per cent. above what they should be, breaks up, such a demand will be let loose that will overwhelm us if we do not prepare to meet it in advance. Lack of employment must hit tea more than anything. Bread you must have, and then comes tea, but the quantities in both cases can be greatly decreased, whereas we want to see the demand extend.

changed and changing conditions, and, although the outlook at this period of temporary depression is somewhat dull, the time is opportune to consider many aspects of the tea industry. For those of us who are more directly concerned with production, that side of the industry will no doubt make the stronger appeal. There can be no question of the stability of "tea" as a whole, although individual concerns may pass through difficult times, and it behoves us to make preparation for the better times that are in store.

With regard to many long-established estates, it may be advisable to give up cultivation of certain areas as being too poor ever to yield profitable returns, but the greater proportion may be retained as likely to respond to better methods of cultivation. There are few of the older tea estates that do not show signs of reduced fertility, partly due to that rapid decay of organic matter which takes place in all tropical soils, but perhaps more particularly owing to unrestricted wash that has been allowed to go on for years. The latter is much more serious than the former, because it generally means that all the fine soil particles formed by the disintegrating action of ages are irrevocably lost. Such surface soil once lost cannot be replaced in a hurry. When plenty of fresh land was available this deteriorated tea land was thrown out of cultivation, or to adopt the planters' term "abandoned." With the present dull times in the tea industry it is probable that this will be the fate of considerable areas of old tea land where the bushes are very old and of low "jat," and more especially if, as is usually found to be the case, a large proportion of bushes has completely disappeared. There is much to be said for this point of view, because, by adopting such a policy, labour and attention can be concentrated on the better areas which remain.

The deciding factors as to whether or not an area of old tea is worth renovating, or even retaining in cultivation are, first, the number of bushes per acre, and next, the "jat" of these bushes and their condition of health. In earlier days tea bushes were planted out at greater distances apart than is now customary, and consequently there was a small number of bushes per acre. If, in an exhausted soil, old and sickly tea bushes are struggling to grow, and if the number of such bushes is less than 1,000 per acre, it may be taken that the wisest plan is to cut the loss and abandon the area. If the soil is moderately good and the bushes healthy, it may pay to fill up vacancies or even to interplant between the existing lines of tea bushes. For this purpose strong two-year-old plants will be required. They should be carefully planted and assisted to establish themselves by being manured in the following year after planting, or, better still, for two years.

In undertaking the renovation of old tea, the first point is to stop all further soil wastage. When tea has been planted on hilly or sloping soils, the only effective means of preventing wash is by arranging an effective system of terraces. The growth of green crop, by increasing the quantity of organic matter in the soil, will bind together the small soil particles that otherwise would be easily carried away by the action of heavy rains, but unless terraces are constructed the loss of surface soil will continue. Where the slope of the soil is considerable narrow terraces

will be required, and the cost of making *vicin* may be prohibitive. This is likely to be so in old tea only yielding a small crop. A simple, cheap and effective means of arriving at the same result is to sow the seed of one of the shrubby leguminous plants, e.g., *Tephrosia candida*, along the contour lines, and allow the plants to remain for several years in this position. The leaf fall during that period, together with the particles of soil which have collected around the roots, will then have formed an appreciable terrace. When at the end of that time the shrubs are cut away, a small drain can be made at the underside of the terrace and the excavated earth thrown up on it, and a fresh supply of seed sown. In this way effective terraces will be formed without any heavy initial expenditure. Rahor dhal will serve the same purpose as the *Tephrosia*. In flat lands there is little likelihood of serious injury from the surface soils being washed away, but as clayey and retentive soils are frequently to be met with in such situations, the question of adequate drainage requires close attention. A good supply of organic matter will tend to keep these soils open and friable and to allow the free passage of water through them.

Where it is found that the surface soil has been washed away and that the roots of the tea bushes are exposed, as they often are to a depth of 8 in. to 15 in., the only hope for improvement is to replace the lost material by carrying soil from the valleys or from nearby jungle. This is of course very expensive, and will only occasionally be practicable. Good results are sometimes obtainable by cutting pits among the tea and using the subsoil from them to replace the soil that has been washed away. Again, this is an uncertain proposition. If the subsoil is of a fairly open sandy texture the work may be expected to be beneficial; if the subsoil is of clayey or lacteritic formation, it is generally found that the latter state is worse than the former. Where it is proposed to adopt the method of using subsoil, it will be found advantageous to cut contour drains and use the excavated material for covering the exposed roots. Such subsoil has not got much available plant food and is particularly wanting in organic matter. The cheapest method of supplying the needed organic matter is by the growth of green crops, but owing to the poverty of the soil it will be found difficult to establish these crops unless by the help of a cheap dressing of fertilizers. Bonedust at the rate of 200 to 250 lb. per acre will usually be of great assistance in getting green crops established under such conditions.

Trenching is another important method of soil improvement which can be adopted with advantage on old tea lands. This work consists of cutting out small drains, usually to a depth of 18 in. and a width of 6 in. to 9 in., filling them with prunings or jungle growth and levelling back the earth. The value of the work will depend on two main factors: (1) The length of time the trench can be left open to the ameliorating influences of the atmosphere, and (2) the amount of vegetable matter that is available for burying in the trenches.

In earlier times collar pruning was almost the only known method of attempting to improve an old tea

estate. When the bushes became worn out and refused to give a profitable yield they were collar pruned; that is to say, the tops of the bushes were cut off level with the soil. It must be admitted that the results were often surprisingly good, but unfortunately this method is not capable of indefinite expansion. Although the bushes may make an attempt to respond, they will ultimately be found to deteriorate very rapidly into a worse condition than before the collar pruning was done, unless this operation is accompanied by manuring and other ameliorative soil treatment.

Shade is an important factor in the health of the tea bushes. It now seems strange that this was not generally recognized until recently, seeing that tea was originally a plant of the jungle. Most of the older estates were planted out without any shade being provided, and, indeed, many are still lacking in this respect. The Dalbargias and Albizzias are suitable leguminous trees for planting among tea, and these trees not only produce a healthy shade, but by the fall of leaf and by the action of their roots quickly make a marked improvement on such depleted soils.*

If the deteriorated tea estates that we are considering are to be brought back to a profitable cropping condition, it will be found necessary to obtain some outside help in the form of manures. Unfortunately at the present time, when so many estates of this type are being run at a loss, little manuring expenditure can be undertaken, but it is to be hoped that times will soon so improve as to enable this to be done. Where the bark on the branches is dry and hide-bound, and where few or no young shoots are coming from below, or from the collar of the bush, it will be advisable to start with a quickly acting nitrogenous manure. The effect of this manure will be to produce a larger and heavier leaf growth and to encourage fresh shoots to burst from the "collar" and lower parts of the stem. When this result has been effected it will be possible to cut out some of the old and scraggy stems and so give opportunity for healthy new shoots to take their place. Nitrate of soda or sulphate of ammonia applied at the rate of 100 to 150 lb. per acre will serve the purpose. If the soil is acid, as many tea soils are, the former is to be preferred as it reduces acidity, where sulphate of ammonia has the opposite tendency. These manures being readily soluble should be applied early in the season before the heavy rains are due.

In this connection it may be noted that the Scientific Department of the Indian Tea Association have reported that very good results have been obtained in recent experiments with nitrate of soda in tea. Indeed, the results are out of proportion to the nitrogen supplied by the fertilizer. This, the experimenters considers, may have been due to the action of the soda in liberating potash, or to the potash which is always present to some extent in this fertilizer.

Phosphoric acid can be supplied by a cheap dress-

* Full details of the various green manures and the special advantages of each will be found in our book on "Green Manures and Manuring," Sornay.

ing of bone dust which will assist the growth of green crops and at the same time be helpful to the tea bush. Potash is not greatly required for Indian tea soils as most of them contain large quantities of this ingredient.

A recent writer, referring to the subject of tea manuring in Ceylon, says:—

“Finally there is the question of the proportion of nitrogen, phosphoric acid, and potash. The excellent results given by the ‘Fraser mixture’ prove that the originator was not far wrong when he prescribed approximately equal quantities of nitrogen and phosphoric acid. Where any deviation has been made from this proportion it has been in favour of a slightly higher proportion of nitrogen. As regards potash, however, the general consensus of opinion tends to show that this substance is of little value when applied to tea. For some time past a fitful correspondence has been carried on in the press concerning this question, but even the letters from those who are in favour of potash have been singularly free from anything approaching proof of its utility. At the same time, until the precise effect of potash on the tea bush is more clearly understood, it is generally agreed that it would be unwise to leave it out altogether.

An ingenious method of evading this question has been adopted by many planters during the last few years. A small quantity of sulphate of potash or sylvinite is included in their mixtures, and at the same time the nitrogen is supplied in the form of nitrate of soda. This policy makes use of the fact insisted upon by Sir A. D. Hall in his ‘Fertilizers and Manures,’ that the soda in nitrate of soda liberates potash from the insoluble soil compounds and renders it available to the crop. At this point it would be well to summarize in order to get a clear idea of the features which must be possessed by a mixture which is to replace the old favourite.

“It is desirable that it should be less bulky.

“It must be substantially cheaper.

“Whilst retaining a certain amount of organic matter, the greater proportion of the nitrogen should be in a more readily available form.

“It must be non-acid.

“It must contain approximately equal amounts of nitrogen and phosphoric acid and a much smaller amount of potash.

“It would, of course, be impossible to lay down the composition of all the new mixtures which have been devised to replace the old one; their name is legion. The following is, however, typical of many of those which have found considerable favour during the last few years:—

	Nitrogen	Phos. acid	Potash
200 lb. Fish guano ...	15 lb.	17 lb.	—
200 „ Nitrate of soda ...	30 „	—	—
100 „ Ephosphosphate ...	—	30 „	—
50 „ Muriate of potash ...	—	—	20 lb.

“Application: 550 to 750 lb. per acre.

“This mixture is much more concentrated than the old one, and therefore much less bulky, at the same time it is much cheaper; indeed, it answers remarkably well to the conditions set out above, which no doubt accounts for its increasing popularity.”

This application will probably be too expensive for Indian ideas, since smaller applications of manure than are used in Ceylon are the rule, but a smaller quantity of the same mixture can be relied on to give profitable results.

A Peep into the Future.

WILL ECUADOR MAKE UP ITS CACAO INTO POWDER AND BUTTER—PERHAPS CHOCOLATES ALSO.

LONG ago, before the first issue of our “Coconuts, the Consols of the East,” appeared, we foretold that ever-increasing costs here and higher freights and charges would withdraw manufacturing industries from the United Kingdom as much as possible. In those days we never thought that the Government of this country would “burn” the public money as it is now doing to please Labour and so kill enterprise to the extent that we all know exists to-day. Fair play is not the property only of the Labour Unionists, it should also be meted out to the workers in this country who still fight and strive to keep the Empire going, in spite of the pyramid of charges that Labour and the Government are piling on our backs, brick by brick, until they kill us out or send us Overseas to carry on the work of feeding the world.

We have always looked upon the extraction of vegetable-oil as being certain to be carried on at producing centres, and also, sooner or later, the manufacture of margarine and soap as well. It will not be long before important undertakings of this class spring up throughout the big producing centres, India, the Philippines, Ceylon, West Indies, &c. Uncommercially high wages will enable such places to compete against those unfortunate employers who still struggle to keep going over here. Sugar is already slipping, and will slip considerably when loaf as well as granulated is made on the estates, especially in a big producing centre like Cuba. Now we have cacao, only in this case the proposal is to come to Europe, but not to the United Kingdom. Receiving too low a price, Ecuador, we are told, must seize the bull by the horns and extricate herself from the financial troubles that threaten her. This is a prophecy taken from the *Confectionery Journal* of London of how this may be done.

Present prices and future prospects, we are told, look bad for the Republic. We know they are, and wonder what this unfortunate single crop, all eggs-in-one-basket country will be like by the time her 180,000 to 200,000 bags of cacao held up in the U.S.A., over here and elsewhere have been disposed of. We also wonder what their net proceeds will yield; what purchasing power, that is, they will give to Ecuador, that has much to pay, and so little to pay with just now.

“Things are so bad with the present cocoa market, and the producers are so disgusted,” the writer in the *C.J.* tells us, “that several of them are seriously talking of installing machinery to express the butter, and then to export the butter and powder instead of the beans.” On hearing this, a correspondent in Europe wrote out criticizing and, in fact, condemning such an idea, and urging—if something

has to be done—the following as a better alternative:—

“It would not cost very much,” he claimed, “considering all the money that the Asociacion has spent to help market the cacao to best advantage, for them to put up a large factory in Europe (not Ecuador) and a second one later on in America, and make the butter and powder, the slab chocolates and fancy eating chocolates over here, using, of course, Ecuador beans entirely, or as nearly so as possible. If run by first-class men, practical Europeans, determined to win through, whose prospects depended on their making the ‘spec’ a success, then Ecuador should do amazingly well, because at least one writer is clamouring that there never was a time like the present when connoisseurs want fine chocolate and seem unable to get it—anywhere : . . Arrangements would have to be made to give organized assistance to the retailers and to encourage choco-café (for want of a better term) to get the public used to these fine products, both as a beverage as well as to eat, and thus spread the taste over a wide area. Either the scheme will take tremendously or it will not, and if it should prove a dead failure—what then? Why, the loss would be but a flea-bite against, let us say, other losses that the Republic has suffered in its praiseworthy efforts to help its cocoa crop on which the well-being of Ecuador practically depends.

“But let the scheme succeed, as it will do if run by practical men put there purely on merit, then the whole of the Ecuador crop would soon find buyers, not at the low prices of the present well-organized buying circle that dominates the world, but on the basis of 5s. to 7s. per lb. retail for the finished article if fancy chocolate, or 3s. per lb. for powder, and 1s. 6d. for butter, and this would mean a very different ratio of profits to the growers who support the Asociacion, and would therefore be the owners of the one or two factories suggested.”

The above is but a portion of the article. We hope those interested in the subject generally—of moving from a country where costs have got out of control to one where Labour is still orderly and where the authorities wish to encourage the smaller as well as the largest firms—or in cacao only will try and read the original. When we say there is to be no such factory in the United Kingdom, we do so because earlier than where we have quoted we are told that “were such factories ever to be established there are plenty of Germans, as well as of French or Swiss experts, who would soon ‘cotton-on’ to the idea.” If a factory, on the other hand, is to be established in Ecuador, the hope is expressed that “at least one leading English or British firm will set up a factory over there, and so not leave it to other nations to skim off the cream of the world’s trade” in cacao.

We feel that the best thanks of the cacao-producing world are due to the *Confectionery Journal* for having published so startling an article at a time like the present, when many seem to think that Brains and Enterprise are under the heel of Labour and can never escape. Russia is awakening to the folly of her policy; perhaps this Old Country will also come to her senses too and charge a fair price for services actually rendered (not merely printed) and legislate

for a fair commercial wage to all people, workers or masters over here as well as to producers abroad (who also have to live), and not charge the exorbitant fees, rates and taxes now being levied which rest so heavily on the smaller firms.

SINCE we have heard so much of the low yields of sugar, i.e., *gur*, to the acre in India, about one ton only for the 2,500,000 to 3,000,000 acres planted, it is interesting to note that in the report of the Director of Agriculture for Bihar and Orissa for the year ending June 30th, 1920, we are told that the most promising of the experiments conducted with a view to increase the value of agricultural products in the province are those connected with sugar cane. On all the farms work has been in progress, and the results of proper drainage and of careful selection of varieties are distinctly encouraging, especially on the Ranchi (Kanke) farm, where an average yield of 6,800 lb. of *gur* per acre was obtained over $2\frac{1}{4}$ acres of several varieties. This may be compared with an average yield of about 4,000 lb. per acre estimated some ten years ago for a large tract in the Shahabad district.

Trade, Politics and Finance.

EVENTS, current to-day, may be of immense interest to the historian of the future, but they are immensely disturbing to the man of business—really interested in his work and anxious to see the world prosper—at the moment.

How it will end remains to be seen. As optimists we take every precaution to keep going and trust to luck for the remainder. If only we could know the truth on both sides; that we can never do, and so fervid imaginations can and do run riot. If the tales told tally in any way with the course of events the scaremonger is elated beyond all control. That is his moment of life. What happens to others and to his country to give him that moment is a minor consideration; one which, in fact, never enters his addled brain. Those who travel in suburban trains and cross that historic old link with the City—London Bridge—twice a day are adepts at spotting the breed. If you cannot hear them talk, you can watch their antics; maybe there is but one in ten or fifty thousand only, but their poison is generated and spreads, unfortunately, only when it is more important to keep quiet whilst you think and act, not “gas.”

This reminds us of a paragraph in one of our contemporaries, when commenting on the slump in raw cacao. As the remarks are equally applicable to all tropical crops and planters, it may not be amiss to reproduce them here: “To-day, it may be claimed that if cocoa, other than Accras, is produced at a loss to the planter, that is no one’s business but the planter’s. Later on, however, when Labour comes to its senses and settles down to work on a commercial basis for wages, then we shall need all the cocoa that the estates have to give us even to-day, and more than we are likely to get if prices more on a parity with the cost of production continue to be withheld from the planters. If the unemployed are to be paid to do no work, or because some will not work at fair levels

of pay, why should not the planters abroad, without whose crops we should be in want, be paid a fair wage or profit?"

Writing on the rubber position in the *Rubber Age* of London, our Editor said, "When the world settles down it will need some 650,000 tons of raw rubber, say in five years' time, against the 112,300 tons we consumed in 1913 and 354,520 tons in 1919—the first clear year after the armistice. When the world does need those 650,000 tons, am I not right in saying, as others also claim, that we shall not have more than 500,000 tons, if as much? If I am correct, won't there, therefore, be another rubber shortage and consequent rise in value? . . . Labour will have to come to its senses if only because the world cannot keep men and women indefinitely on unemployment pay, simply because they cannot or will not work for any wage they can get. When they do work, not only will passenger and transport cars be cheaper, but the increased trade turnover everywhere will demand more vehicles and be able to pay for them, neither of which can be looked for now."

So much for the future; At the moment we are wondering whether the eclipse to British progress will take place owing to a strike. Much will have to happen in many ways before we can finally settle down to increased consumption. The day of settlement will come, and the longer it is postponed, the greater the subsequent demand.

A representative gathering of confectioners and others interested in sugar as a raw material entertained the members of the Royal Commission on Sugar Supply to luncheon on April 5th. Mr. Sydney W. Pascall, president of the Manufacturing Confectioners' Alliance, presided, and among the members of the Royal Commission present were: Sir Henry Primrose, the chairman. Mr. Reginald McKenna, the first chairman of the Commission, was unable to attend, and so was another ex-chairman, Lord Bledisloe. "The confectionery trade," Mr. Pascall pointed out in his speech, "had its critical times during the war. Its sugar consumption, which was 151,632 tons in 1915, was restricted to 41,750 in the following year, whilst the fortunate jam manufacturers soared from 130,000 to 216,828 tons."

Coming to current market news, coffee prices are given on p. 54; sugar shows little alteration, but the demand has been quiet, possibly because of the uncertainty among ourselves at the moment and in most places, especially in America, as to the near future. Whilst no one pretends that America is an exhilarating market, there seems to be a hope that the worst has been passed, or at least reached. Now it is hoped, if improvements cannot be looked for immediately, there will be fewer items of bad news to chronicle than has been the case for some time past. If this is correct in only some cases, it is something to be thankful for. All must watch the new régime, now Republican, at Washington, however. They seem anxious to become strong protectionists again, perhaps more especially in favour of the farmer element, but if one group gets help, others are sure to follow. One point to note is that the new tariff rate, it is reported, will be based on the valuation of goods in American money at the time of their arrival over there.

Whilst, however, the disposition of the new party

leaders is, we are told, to make the new tariff strongly protective in its character, it has yet to be seen how the change will affect tropical crops, and also how financial circles will accept them. America is owed immense sums of money, and it is already realized that protection will neither hasten nor ease repayment. Business reasons, therefore, may push protection into the background at least for a time, and, after all, as a President and his party only hold office for four years, ideas as to policies by the time repayments come flowing into the United States may be very different to now, irrespective of party. We fear there will not be a very big slice cut off the debt owed to America by March, 1925, when a new election will be necessary. What do our readers think?

Meanwhile, returning to our own market, fully middling American cotton has moved up since last month, and is now between 8d. and 9d., 7·99d. being very near the first figure. This is the present quotation, rising to 8·43d. in August. F.G. fair sakel is at 15½d. against 13d. last month, Manila hemp is worth about £40 10s. for J. grade, New Zealand fair £44 spot. We have no quotation for sisal. With shellac, T.N. Orange stands at 265s. to 285s., and A.C. Garnet 290s., with lower prices for futures. Palm kernels are at £16 15s. (against £36 a year ago). Copper is worth about £69, and tin £160 to £161.

Coming to finance, the following is a comparison of the principal points in the returns of the Bank of England at the present time and the corresponding week last year:—

April 16th.	1921	1920
Bank Bullion ...	£128,348,222	£112,449,590
Reserve of Notes ...	16,444,040	24,416,420
Private Securities ...	99,692,685	79,891,326
Notes in Circulation ...	128,537,050	106,018,425
Rate of Discount ...	7 per cent.	7 per cent.
Price of 2½% Consols ...	48½	46
Price of Bar Silver ...	33¾d.	67¾d.

The London Cocoa Market.

By THE EDITOR.

The *Bournville Works Magazine* has some interesting illustrations, including an elevation, of the new Cadbury-Fry-Pascall factory to be erected in Tasmania to supply Australasia. The question of Australian duties should assist such an undertaking, which we feel sure will have the good wishes of everyone for its success, sugar men as well as cocoa, not only because it will increase the demand for these crops, but also because of the personality of those behind the scheme. There are truly "some of the best" in this latest triangle, a combination far more likely to benefit the world than other triple alliances of the present or of the past. Situated at Triffett's Point, where the military camp is or was, the surroundings and view, also transport possibilities (it is on a small neck of land known as the Claremont Peninsula, so that water transport is available on all sides) are ideal. The best of luck both to the future employed and employers.

The same contemporary speaks up well for the Gold Coast in a paragraph that will no doubt please General Guggisberg and his officials, especially the Board of Health over there. Mr. E. J. Organ, so

well known on the Gold Coast, attracted, we are told, "the largest audience of the season when he lectured on 'The Glamour of the Gold Coast,' of whose evil reputation he made short shrift, replacing it by entrancing and romantic pictures of adventurous freedom. It was a fascinating hour."

Discussing prices realized in London, one could truly say that the less said the better. Still one must say something. The best value being paid just now is 42s. for good fermented Accras, the worst is 48s. for the pick of Grenadas, with 49s. for small lots; yet it is on this price, 48s. for the best Grenada marks, that the whole foundation of values must be said to stand at the moment. Let us only hope that this already low level will not further drop. I should be sorry to wager it would not, especially as over 4,000 bags have just come in to replace about the same quantity recently sold. There is plenty of "estate" Trinidad for sale at about 54s. or 55s., and no one apparently keen to possess it; good marks are worth 8s. to 10s. more. Common West Indian kinds are quoted at 40s. to 42s., but no one seems to have sold any. The two items one hears of day after day without change are, 38s. for fair fermented Accras and 1s. 7d. per lb. for small lots (one ton) cocoa butter.

Whilst the rubber planter must be having quite a lean time at present prices (under 11d. per lb. for spot), I doubt if the Grenada or Trinidad cocoa planter is doing any better, if as well. To be able to sell rubber, and the very best quality only at that, at 10½d. or even 1s. per lb. at a profit must mean that the estate is particularly favourably situated in all ways, as to transport, to the factory, or to the railway or shipping wharf, for water supplies, &c., and of course many estates cannot do so. Whilst, however, the rubber and other papers are busily sympathizing with the planter of that crop, none of them seems aware that such a being as a cocoa planter exists. This is because rubber, like a wise industry, has attracted much British capital unto itself and cocoa has not, and yet properly managed cocoa may yet prove to be the more reliable investment—year in, year out; come boom, come slump—of the two. Cocoa ran up in price during the war (for what could be sent across the water), rubber went down; cocoa sold higher than ever after the armistice, whilst rubber showed a further depression. Now both are on the shelf, or "in the cart," together, equally depressed—but rubber is having a fuss made over it, whilst no one speaks up for cocoa. Here is an instance taken from the *London Observer* of April 9th: "Some (rubber) companies will have to go under, others have little hope save through schemes of desperate reconstruction. It may be that amalgamations will help a proportion. Those concerns which can ride out the present financial storm will bring brave rewards to their shareholders.* Our private advices show how costs are being drastically reduced on some estates, so drastically indeed that doubt arises as to whether economy may not be carried too far if it involves starving the estates of essentials for their adequate upkeep. When a com-

pany in these days can produce rubber at a shade below 6d. per lb. f.o.b., it shows that the knife is being applied pretty deeply." One wonders how many estates can produce rubber at 6d. per lb., and what will happen to those who do not, compared with unremunerative cocoa estates.

I discuss all this because just the same trouble and consequent discussion as to costs is pervading the raw cocoa market. If you refer to an ancient issue of *TROPICAL LIFE* (that of February, 1909) you will find that the late Mr. Chas. Leotaud, a member of one of the oldest families of cocoa planters in Trinidad, was "Our Friend." Members of the same family now own "Tierra Nueva" estate and also have a share in "La Compensacion" estate over there, and according to these experienced authorities the extra cost of labour, &c., on the estates has caused the cost of a bag of cocoa placed f.o.b. Port of Spain, to go up with a run. "Estates," we are told, "cannot produce cocoa at less than 50s. an estate bag of 1½ cwt., as is calculated here; add to this 25s. more for interest on the capital value of the plantation (calculated only at 6 per cent.), and you get a total cost of 75s. per bag (f.o.b. Port of Spain), or 50s. per cwt.," and yet there are those who say 68s. is too high for such cocoa, London landed terms, on this side. How do such producing rates compare with New York's sale prices?

Even at 75s. a bag it is claimed that proper cultivation cannot be given to the trees, and, if the present unduly low level of prices continues, the yield per tree and per acre must lessen (due to lack of proper attention) until in the end, of course, the plantation will prove unremunerative and be abandoned. Planters therefore are urging manufacturers to consider the position, and after checking such statements as the above for themselves, to realize the mistake it will be, even in a year or two's time, to allow prices to go below the cost of production and to remain there, because otherwise, when the turn comes in the "affairs of men," they will have to pay more than they are saving to-day on account of a "jam" in the outflow of trade, which no one can prevent.

This policy, of course, is one that this journal has been preaching consistently ever since it first started, and especially since the "boom" early last year started to wane. As with rubber, however, we still urge both buyer and seller, i.e., manufacturer and producer, to hold on and assist and encourage each other in all ways possible, for as the *Observer* truly observed, those who survive these times of stress will reap brave rewards. Say what you like, planters (except of rubber) had a royal time with prices up to March or April last year, so that there must be something left over to live upon until the sun, of a world-wide demand, shines again, and fills everyone's pockets by emptying the, at present, overfull warehouses.

I might add that a reliable authority in Grenada speaks of the average cost of producing a bag of estate cocoa in that island as being 40s. to 42s. a bag exclusive of any expense save those actually incurred on the plantation. Taking this as also being a bag of 1½ cwt., makes the cost per cwt. come to 26s. 8d. to 28s. a cwt., against present quotations in London of about 43s. for common marks and 48s. or 49s. for

* This is the same with everything, tropical producing industries or firms in the temperate zone, but particularly so with tropical crops which are in over supply to-day, but will be short later on. See our March issue, p. 38.

good to fine. It would be both interesting and helpful for other producing centres, as the Gold Coast, San Thomé, Ilheus (in Bahia) and San Domingo, to give us their views on this important matter of costs *versus* net proceeds to themselves or to the selling prices in London and elsewhere, including freight and all charges. More than one paper, I hope, will touch upon such matters at the coming Tropical Conference, or if the matter of costs is not actually included in the papers, it shall be in one or other of the discussions to follow, for if no one else mentions it, I will do so. For this reason alone, it will be important to have as many comparative tables as possible to lay before the leading producers and buyers who are certain to attend.

This leads on to another point of importance to the planter, who—generally buried away on his estate far more than the gad-about buyer and trader in the resultant beans is inclined to believe—gets much of his information only after several repetitions, and so, knowing this, he often ignores or minimizes the value of what is really good advice. The question of cost of production (and the necessary adequate remuneration in return) brings up the question of quality. Lack of attention means less healthy trees, and so inferior beans. Skimping in costs curtails fermentation, drying, &c., and generally induces lack of care and hurried bagging. Now the finest of cocoas must go down in quality if subjected to such treatment on account of unremunerative prices at distribution centres, and the quality of such cocoa, as in Venezuela, does deteriorate or else the cocoa disappears altogether, as is proving to be the case in more centres than one. Already the choicest of all cocoas, viz., Mexican, is certain (short of a miracle) to suffer the fate of the dodo, and other choice Latin-American kinds are tending to take the same wrong turning. Utter indifference at distributing and consuming centres is causing a still more utter indifference as to the fate of the cocoa in Central America between Mexico City and the Amazon. In Ceylon, rubber or other crops are, or were, more remunerative, and so their cocoa, delicate, light, touchy in its nature, has been side-tracked for sturdier and less whimsical crops. Java and Samoa are in the same boat, even if they are still anchored and so not started as yet—never to return. Years ago one of the leading American firms, in answer to my wail over the neglect of fine cocoas, told me that the supplies available were, even then, fifteen or more years ago, too small and altogether too unreliable for them to trouble about. We have, therefore, most reluctantly, they wrote, had to give up some of our formulas or recipes (I forget the exact term) and cut out choice cocoas for others that we know will come to market regularly as and when needed.

To-day, or at least on March 24th, Messrs. H. O. Wilbur, of Philadelphia, almost repeat the above statement word for word. This is what they wrote, and I have reason to believe other firms over there would write in the same strain:—"We are anxious to secure a better grade of all cocoa beans to produce the really fine quality we aim at. We are free to admit that, in the last few years, it has been exceedingly difficult to achieve our object. We are quite

dissatisfied with the Ecuador cocoa, the so-called 'season's Arriba,' which is exceedingly disappointing and full of leady beans, very undesirable. Rather than use such cocoa we would and have sold parcels received at a heavy loss. Really fine Maracaibos are almost unattainable, and we do not find Puerto Cabellos to be running as well, to have as good a flavour, or to be generally as desirable as formerly. Strange to relate, it is the lower growths, such as Sanchez and Accras, which we find to be better than their old average quality."

Now whose is the fault of these fine old cocoas being in disfavour? Is it the fault of the consuming public, who will *not* pay the price for really choice chocolate confectionery, or of the manufacturers (or their advertising departments) for not educating and working the public up to the necessary level of appreciation to demand (when they can pay for it) only the very finest of chocolate, for the very finest of palates, or the very richest of pockets? Is it, on the other hand, the fault of the producers, who have failed to maintain even the inadequate supplies that they formerly exported, or of the buyers never having made it worth the while of these easy-going, trouble-hating Latins to increase supplies and improve the quality? What a Conference could be held on this subject alone. The dying out of a choice crop of great economic value, so great, in fact, that mean people will not pay its value if they could, and ignorant people cannot pay it because they are unaware of the value of what they are asked to buy. It is "up" to the advertising departments of the leading manufacturers or the producers of choice cocoa abroad to do away with such appalling ignorance.

Now to change the subject. Havre received 24,665 bags last month, including 5,650 Venezuelan and 15,900 Accras, and delivered 23,114 bags fairly evenly assorted. This left her stock just a little higher, as under, than the 310,154 bags I showed her to have at the end of February. Here are the stocks and values, also rates of exchange at the end of March this year compared with 1920:—

		New York \$3.92- Paris Fcs.55.00		New York \$3.96 Paris Fcs.65.00
<i>Havre, March 31st.</i>	Stock Bags 1921	Value Fcs.	Stock Bags 1920	Value Fcs.
Pará	7,049	132 to 144	3,968	355 to 370
Bahia	42,730	111 „ 136	19,422	340 „ 365
Venezuela ...	27,295	168 „ 273	19,012	355 „ 450
Trinidads ...	36,726	154 „ 157	25,518	360 „ 370
Grenada & O.W.I.	10	112 „ 140	28	330 „ 350
San Thomé ...	33,434	94 „ 132	11,352	325 „ 360
San Domingo ...	43,597	108 „ 112	164	325 „ 360
Haiti	35,802	80 „ 114	14,418	300 „ 325
Accras	52,980	106 „ 110	29,819	310 „ 330
Guayaquils ...	11,316	163 „ 190	18,166	385 „ 405
Others	20,766	—	4,994	—
Totals	...311,705 bags		146,861 bags	

Besides the above there are 17,100 Accras ex. the s.s. *Hemledal* waiting to be cleared and about 10,000 other kinds.

Against the above, London had on April 16th a stock as under:—

London Stock, April 16th	1921 Bags	1920 Bags	1919 Bags	1913 Pre-war
Trinidads ...	22,691	17,419	14,098	6,175
Grenadas ...	28,139	20,131	8,624	10,307
Other W.I. ...	8,711	7,975	5,273	3,298
British African ...	13,229	37,734	38,751	8,870
Portuguese African ...	1,397	11,598	7,131	8,493
Cameroons ...	1,378	1,378	476	6,219
Ceylon and Java ...	23,079	14,007	13,841	24,095
Guayaquil ...	66,090	25,095	29,686	14,490
Bahia and Brazil ...	985	132	1,011	1,166
Other foreign ...	32,905	16,313	2,936	8,395
Totals ...	198,604	151,782	121,827	91,508

Coming now to the Board of Trade figures, showing the movements in the United Kingdom during the first three months of this year, we still find marked declines both for raw cocoa as well as for foreign manufactured. It cannot therefore be urged that the consumption has increased in spite of the falling off of the home-made article. During March only we receive 9,784 tons of raw cocoa (including 8,237 Accras and only 1,550 tons therefore of all other growths), against 12,707 tons last year, and took into home consumption 2,929 tons, against 5,070 in 1920. Here are the figures for the three months:—

Jan.-March Raw cocoa only	Landed Tons	Del'd H.C. Tons	Exported Tons	Stock, Mar. 31st. Tons
1913 ...	12,810	7,480	2,101	12,150
1919 ...	39,645	16,500	326	43,850
1920 ...	33,103	15,448	10,596	47,450
1921 ...	23,350	11,049	4,192	58,500

Decr. 9,753 Decr. 4,399 Decr. 6,404 Incr. 11,050

Bordeaux at the end of March had 106,818 bags of cocoa on hand against 92,858 last year and 80,931 in 1919. Alleaume gives the following table for all France at the end of the year, showing total deliveries during 1920 of 73,245 tons (1,000 kos.), against 83,937 in 1919 and 53,270 tons in 1918.

Cocoa Movements in France—				
Jan.-Decr.	1920	1919	1918	
Received ...	80,441	103,275	38,297	
Del'd Home Cons. ...	45,287	51,613	37,163	
Exported ...	27,958	32,324	16,107	
Stock ...	47,257	37,073	15,051	

Owners of Bahias, wrote M. Faure from Bordeaux on April 8th, are pushing their sale so vigorously and at such advantageous rates as to cause Accras to be quite neglected or to be spoken of at values below the already over-cheap quotations in London. The results of such anxiety to sell are not touched upon, but judging from reports generally, it would be as foolish to force sales in France as over here, and no one out of an asylum would do so in London. If, perchance—as with the antiquated driver of a London “Growler”—you believe you scent a customer, well and good; wait and watch and grab him if you can, but to try and force buyers to take your stuff—well, I know no one so foolish as to do so. Even a bankrupt would go slow now, simply because it pays to do so.

Meanwhile, dull as the London market may be at the moment, it still has the Continent as a customer when the public starts to buy.

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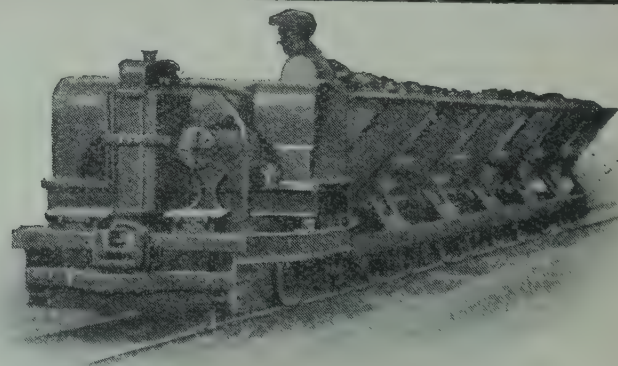
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A Monthly Journal devoted to the Interests of those living, trading, holding property, or otherwise interested in Tropical and Sub-Tropical Countries.

VOL. XVII.—No. 5.]

MAY, 1921.

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Dwarf Coconuts under Cultivation.

In the June issue we shall include some valuable notes, just received from Mr. Will P. Handover, of the Sungei Nipah Estate, on the above. In this article, which will be illustrated, Mr. Handover explains why the yield fell off, and what prospects can be looked for by those cultivating this variety. Last, but by no means least, Mr. H. C. Sampson, now *en route* for Nyasaland, states his views on the subject. Everyone who has read the second edition of Messrs. Munro and Brown's book, "A Practical Guide to Coconut Planting," with its Appendix on the Dwarf Varieties, will wish to read what Mr. Handover, as manager of Sungei Nipah, and Mr. Sampson have to say. Our only regret has been that we cannot include the notes in the book. When the third edition is called for this of course will be done.

Our approaching Change of Address.

As foreshadowed in our March issue, p. 39, as our City address—112, Fenchurch Street—is to be pulled down, we shall be compelled to move elsewhere. Fortunately the well-known firm of Messrs. Harrison and Crosfield, Ltd., has most kindly offered us a nook within the purlieus of their palace, for which we are most grateful. The atmosphere at least will be congenial, which is more than can be said of the idea of moving. On the ground floor of our future City domicile are the show-rooms and offices of Messrs. Corrie MacColl, the copra brokers, whilst adjoining will be the Harrison-Crosfield palace itself. We are not there yet, and hope that it will not be necessary to move until September, as that will allow us time to get over the Rubber and Tropical Exhibition, physically, mentally and editorially. As, however, we may have to go in June, will *all* our Overseas friends address their letters and exchanges to the Publishing Offices at 83-91, Great Titchfield Street, Oxford Street, London, W.1, until they hear to the contrary? We would particularly impress the need of doing so upon our exchanges, lest the papers should get lost, for there is not one of them that we feel able to do without.

FOR SALE.—Out of print. Good second-hand copy of Royal Natural History. Edited by Richard Lydikker. 6 vols. Cloth. Price £5 10s., post free. Apply to the Publishers of this paper.

The Coming Rubber and Tropical Exhibition and Conference, Royal Agricultural Hall, June 3rd—17th.

(See Advertisement facing p. 69.)

OUR STAND WILL BE 4A FACING THE ENTRANCE.

It appears that in conjunction with the *Rubber Age* we shall have an exceptionally prominent position for our journals and books at the top of the Arcade leading down to the main entrance of the Hall. Here we shall hope to see all our supporters and friends at one time or other in the fortnight during which the Exhibition will be open. Our Editor will perforce be mainly up at the Conference, but those wishing to see him can always do so by entering their names downstairs and making an appointment for the off periods. We shall have an important selection of our latest works on tropical agriculture and development, and only regret that Mr. H. C. Sampson's book on the "Coconut" will not be ready in time. The plates, however, have been put in hand, for they will take some time to turn out as we wish to have them.

As Mr. Sampson left for Nyasaland in an official capacity—we believe in connection with the cultivation of cotton—on Friday, May 13th, his paper on the root-growth of the coconut palm has also failed to come into being, as between getting away for his journey, and especially arranging the work to be done in East Africa, rendered it impossible to prepare the necessary notes; could he have done so, such a paper needed the author to read it and, above all, to answer the many queries that are sure to be put to him during the discussion. However, all we should have been told—and much more—will be found in his book when published, which it will be as soon as the author returns. To say, however, when we shall see Mr. Sampson back is quite impossible at present.

THE "RUBBER AGE" STALL.

As already stated, since we cannot properly attend to our exhibits downstairs, Mr. Herbert Standring, Editor of the *Rubber Age*, will "mother" us for the duration of the Conference. On his stall we understand will be found most of the leading books on Rubber that have appeared of late. Again, needless to say, placed as he will be, facing the entrance, visitors wishing to know the Whats, the Wheres and the Whos in the building cannot do better than apply to him for directions. "The *Rubber Age* and its staff," he assures me, "will be there to assist rubber men and overseas' visitors; I hope, therefore, we shall be made good use of."

THE "TROPICAL LIFE" AWARD FOR COCOA.

Coming to other sections, TROPICAL LIFE at the beginning of the year offered a trophy or its equivalent, as the Committee thought best, for any competition other than rubber, and preferably cacao, that would stimulate interest on the part of the producers in the article entering the competition. After careful consideration the award will be devoted to encourage improvements in the preparation of cacao.

REGARDING THE PAPERS TO BE READ.

Meanwhile, Dr. Torrey tells us that besides those on Cacao by Mr. Whymper, Mr. Hatherley (of Messrs. James Pascall, Ltd.), Mr. A. W. Knapp (a) The Cacao Moth and its Control, and (b) Insect Pests in the Cacao Store, and Mr. E. J. Organ (of Messrs. Cadbury Bros., Ltd.), Mr. H. J. Gillespie of Bagan Datoh Estate, Lower Perak, has promised a paper on Coconuts, and Mr. T. Hunter one on Cola Particulars of those on Vegetable Oils, except one by Mr. H. J. Pooley or Mr. James Macgregor on Solvent Extraction, have yet to come.

OTHER AWARDS.

Cups and gold medals galore, as well as other awards that will be equally satisfactory to the winners to receive as a proof of their proficiency and skill continue to flow into the arms of the Executive Committee of the above Exhibition for presentation next month to those fortunate enough to win them.

The lists include:—

Cups to be presented with the Gold Medal awards in connection with the Competition of the Rubber Growers' Association No. 1, have been offered by Mr. Noel Trotter for the Malayan Section; by Sir Stanley Bois, for the Ceylon Section; by the South London Association in London, for the S. India and Burma Section; whilst that well-known friend of previous exhibitions, Mr. C. E. S. Baxendale, has presented a Cup for the best sample of Scrap Rubber entered in the Malayan Section, and the Netherlands Association will be offering a trophy for rubber in the Netherlands Section.

Regarding the *Ceylon exhibit*, the Ceylon Chamber of Commerce and the Planters' Association of Ceylon have offered prizes amounting to Rs. 1,000 and £50 respectively for the best exhibits of rubber and other products received from Ceylon exhibitors for exhibit in the Ceylon Stand. This amount, it seems, will go to form seven £10 prizes to be awarded for the best exhibits of rubber in each of the following classes, provided the entries are sufficient to warrant a prize:—

- (1) Crêpe.
- (2) Unsmoked sheet.
- (3) Smoked sheet.
- (4) Block.
- (5) Scrap crêpe, No. 1.
- (6) Clean curly scrap.
- (7) Any smoke cure.

The balance of the prize money will be distributed at the discretion of the London Organizing Committee in awards amongst exhibitors of other products in accordance with the number of entries received, and if possible one prize, at least, will be awarded for Ceylon cacao.

Brazil and Rubber Planting.

THE following letter appeared in the *London Observer* of April 24th. As it seems to have attracted attention on this side—judging by the letters and visitors we have received on the subject—we feel perhaps it may interest our oversea readers as well.

(To the Editor of the *Observer*.)

SIR,—I always study your Financial Editor's "City Notes" with care and attention, they are interesting and accurate. For this reason, therefore, I read almost with dismay in your last issue (April 17th) that:—

"It has always been a puzzle to many people that Brazil has never taken any steps to establish a plantation rubber industry near the sea coast. . . . Now, Brazil seems to be waking up and, if report speaks true, the Government is to set aside a large sum,* not only for the encouragement of rubber manufacturers within the country, but for the establishment of a plantation industry within measurable distance of the port of Pará."

I have always had much to do with those who are very keen on seeing the illimitable resources of the Amazon developed on the best lines possible for all concerned. The list includes those without experience, who are very keen on establishing rubber plantations in Brazil, as well as others, a goodly majority with much knowledge, who are equally keen on showing why Brazil must not plant a tree. I was never left in doubt as to the second group being the wisest to follow. From what they tell me, and for other reasons, I am sure it will never pay to establish rubber plantations between Pará and Peru, even if there was no competition out East; with such a rival it would be simply throwing money and probably lives away in making the attempt.

The Moju Rubber Plantation, owned by a New York (Wall Street) concern, was within measurable distance—about ninety miles—of Pará. What did it cost in lives and money to establish? Where is it to-day? I always understood that, in this case, money was not stinted, that the field-work was excellent, and the area, perhaps four square miles, a reasonable one. Yet it failed badly, and no wonder. Speaking of the estate, Algot Lange, in "The Lower Amazon" (p. 23), tells us that every ten acres cleared cost the life of some man. Few enterprises, he claims, have cost, in North Brazil, so many lives as this estate. In percentage, it far exceeded the loss of life in the construction of the Madeira-Mamoré Railway, even more than the Panama Canal in the time of the French. Is this an exaggeration?

Brazil wants many more millions of population before she can properly develop her resources. To plant rubber would whittle down what she already has. Brazil needs many millions of money to plant cotton (especially long, fine-stapled cottons, indigenous to her soil), sugar, &c., which the world will shortly be needing; she does not want to lose what capital is already at her disposal to plant rubber, which is not likely to mature, and the crop from which is not needed, even if the estates did prove successful.

In his book, "The Rubber Industry of the Amazon," Woodroffe suggests that there are some 300,000,000 rubber trees still waiting to be tapped. If only one-tenth of this number is available surely it will be a

mistake to plant more, especially when we have a world-stock (300,000 tons) sufficient to satisfy our needs for the coming twelve months. It is even being suggested that neither Brazil nor the East shall export (or tap) any rubber for a year. To-day, therefore, is not the time to talk of planting rubber in Brazil; by the time such estates, if established and successful, would be producing, she would be less able to compete against plantation rubber in the East than she is to-day with her wild produce.

The Amazon Valley must be opened up and developed if ever Brazil is to go ahead. Woodroffe proves this in his book. Chapter XX explains in detail how to start. Lange's description of the state of affairs confirms Woodroffe's reports. Both, as well as others, agree that, do what you like to help Brazil go ahead with one exception, viz., do not talk about planting rubber.—Yours very truly,

H. HAMEL SMITH,

Editor, *Tropical Life*.

112, Fenchurch Street, E.C.3.

Rubber and Cotton Notes.

LONDON BRIDGE AS A CONSUMER OF RUBBER.

A VIOLENT collision at the Post Office between the writer and, unfortunately for him, an altogether much larger built man, drove home forcibly to our minds, as well as to our bodies, the fact that both of us, whilst wearing a thick build of boot, had both soles and heels covered with rubber. Hence the collision, back to back we both aspired to the same spot, which only held one, and the writer lost.

Proceeding on our way full of thoughts and feelings of what had happened, we could not help noticing what a large proportion, surely the great majority, of our fellow pedestrians were shod similarly to ourselves. In the suburbs it is much the same. The world on the whole walks with little or no noise—thanks to rubber. This made us realize, going over London Bridge, what a toll this *via populi* extracts in the aggregate from the soles and heels of the millions who cross it day by day, to say nothing of the rubber tyres on the taxis, buses and other vehicles as well. What a consumer of rubber, therefore, in that quarter mile of arched granite! What a medal it deserves from the R.G.A. for work already performed, as well as for what we all know it has yet to do in the future to an ever-increasing degree every year! Who can foretell when the last rubber sole or tyre will make the crossing? Will it ever come that the pathways, if not the roadway—and why not both?—will be covered with rubber sheeting?

RUBBER UP THE AMAZON.

"I was very much interested in your April issue," writes an ex-Amazonas resident from Liverpool, "and especially in your article on the Amazon and Pará rubber. As you know, I was in Para for some ten years, and much regret the present parlous state of the rubber market, especially in connection with Pará, as I know fine hard over there costs to produce from 2s. 4d. to 2s. 6d. per lb. Thus, at 10½d. for

* According to one account, \$3,000,000 alone are to be used to finance the introduction of the labour necessary. No one so far, however, has pretended to say where labour costing so large a sum is to come from.—ED. T.L.

island or soft fine, the loss to the producers is most serious."

Serious as the loss must be, it is wonderful how the rubber is still produced. The local system of barter, as was pointed out the other day in "Indigenous Rubber Notes," contributed by our Editor to the *Rubber Age*, softens the loss to *patrao* and passes it on to the *seringuero*, who seems to think a few yards of cotton, a few milreis and a drink are good pay for twenty or more kilos of rubber. Even at such a cost present prices can hardly pay freight and charges, but cheap as the East seems able to produce rubber on some estates, it is appalling to think, if the tales one hears are true, what a miserable pittance must, in too many cases, be doled out to the *caboclo* up the Amazon per 100 lb. of rubber delivered.

HELPS TO RUBBER CONSUMPTION.

The troubles of the man-in-the-street over here should tell to the benefit of the rubber market. It is time something came to help it. Let us hope that the present increased demand for motor haulage on account of the coal strike, the extravagant demands of labour and the ever-upward charges of the railways will stick, long after the troubles that generated it have passed away.

With the thousands of unemployed spoken of, there must be many who are tied down to no union to keep them from working who can run a motor lorry. Such men should now find work in running transport cars, lorries, charabancs, and buses to convey goods and passengers who cannot travel because of the scarcity of coal. Even when the strike is over, one can but hope that such traffic will be maintained, as both trams and trains have quite lost their reputations as being in existence for the good of the public. They are there only for the good of the employés. Look at the run-down in the value of the railway shares if you doubt this. It would be the same, and probably worse, with the trams, only in their case the cost is lost in the rates, and the public pays.

On a commercial basis, however, transport, like rents, telephones, &c., is too high to enable this country to compete. Our goods, even without German competition, are too dear to buy either retail for home use or to send overseas. Hence the slump. All this time Germany is paying competitive wages and forging ahead.

GERMANY WILL SUPPLY THE WORLD.

One wonders how many people, rubber and otherwise, who thought they could feed Germany twelve or fifteen months ago are more likely to be fed by Germany to-day instead. Those, other than officials, who visit the Fatherland seem to find only respectably dressed men, women and children, and all seem adequately if not well nourished. All seem at work and putting out the goods at reasonable prices, and at values very low against ourselves or America. Unless, therefore, as the new régime in the United States started at once to talk of, high protective duties are imposed to prevent the man-in-the-street and his family from buying goods at a reasonable basis, it will be Germany who will supply the world, and not the world which will supply Germany. How will this affect rubber?

AND THEN THERE IS RUSSIA.

German influence is bringing Lenin to heel. Trotsky does not count. The Professor of Bolshevism alone matters, and now, we are told, he is turning on his old colleagues and supporters and moving towards capitalism again. This means law and order must prevail again, and then will come the demand for goods—that demand which has been pent-up for so long and for which Russia—that is, Greater Russia, can pay, for the peasants in Russia have money. The multitudes will buy instead of the few, and that is what Trade and Commerce (with capital letters, please) like, viz., to sell to many rather than to the few.

The Russian peasants have all along been drawing in money until we are told they have accumulated millions. Tea, rubber, and even cacao should get their share of this. The moment the towns are able to offer what the peasants need, these peasants will simply flood Russia (and through Russia, then flood Germany if we are not careful) with these stupendous heaps of money. A collapse in the currency will of course result, but then be sure that the Germans will back out before this comes. What the tropical trader wants to do is to get into the peasants on the first rush. "The value of money," the *London Observer* warns us, "will fall tremendously, and the workers in the towns will suffer severely. This is likely to become a great catastrophe." Moral: keep out of the towns and stick to the peasants with their millions.

EUROPE AND RUSSIA.

All the chief European countries, and especially the Scandinavian ones (which have been trading throughout the war with all the belligerents), are working to trade with Russia. Tropical planters, rubber or otherwise, should watch their opportunities, therefore, and not be tied too closely to any one clique. Above all, do not fall into the hands of Germany and let her make the profits; get as near as you can to the actual consumers and make these profits yourselves. As of old, Germany is pretty certain to "boss" reconstructed Russia, and so will be buying tropical produce, rubber, cacao, vegetable-oils, &c., for that purpose, especially the first two. Still, if this country keeps awake, and the rubber planters, or the R.G.A. over here come in to help, the rubber industry as a whole, raw and manufactured, ought to be able to secure a full share of the profits that will be coming both from Central Europe and Russia, thanks to Germany's level-headed workers, as compared with our own. It would be interesting to learn how wages, through the post-war demands of Labour, have increased costs in Germany, to the manufacturer, the merchant, the traveller, and the home as compared with England and America. Already we know Germany is "licking creation" and beating all records with her dyes, because they can produce them so much cheaper than her rivals, and if dyes, why not rubber and other goods as well? Of course she will, until costs come down in the United Kingdom. Lower costs do a double good. They enable Germany to undersell the world, and they leave her people with a larger purchasing capacity. Local rates and charges

apart from Imperial taxation in the United Kingdom (and the last-named if necessary is still appalling) are harming trade and seriously checking buying even of necessities, whilst those being mulcted never got less value for the money. The service is bad, and the roads and path in the suburbs around London go un-mended, although the people are taxed for the purpose. Is this the same in Germany?

Meanwhile the humble "push-bike," i.e., the ordinary bicycle, has come into use again since trams and trains leave off early or do not run at all. All this helps to wear out rubber in the aggregate.

PRICES AND STOCKS.

The market has been very depressed and sales increasingly difficult. Would-be buyers tend to allow the World's stocks to become almost a nightmare. This is a great pity. Anything that can be done to do away with fears must benefit the market. The following are the quotations according to Messrs. Lloyd, Matheson and Carritt up to the Whitsun holidays:—

Spot quotations—		1921 May 12th.		1921 5th.		1920 13th.	
		s.	d.	s.	d.	s.	d.
Smoked sheet (F.A.Q.)	...	0	9	0	8 $\frac{3}{4}$	...	1 10 $\frac{1}{2}$
Crêpe (standard quality)	...	0	10	0	9 $\frac{3}{4}$	...	1 11
Parà	...	0	10 $\frac{3}{4}$	0	10 $\frac{1}{4}$	...	2 2 $\frac{1}{2}$

Forward positions—		Smoked Sheet		Crêpe	
		s.	d.	s.	d.
1921, May	...	0	9	0	10
" June	...	0	9 $\frac{1}{4}$	0	10 $\frac{1}{4}$
" July—September	...	0	10	0	11

Stocks—		Tons		Tons	
Plantation,	} ... May 7th, 1921, 69,158	...	May 8th, 1920, 23,082	...	...
London					
Parà, Liver-	} ... „ 1st, „ 800	...	„ „ 700	...	...
pool					
Total 69,958			Total 23,782		

BALATA.

This market continues quiet. Venezuelan block is worth about 3s. 1d. c.i.f. and 3s. 2d. spot; West Indian sheet is quoted at 3s. 6d. spot and forward against 2s. 5d. for hard pinky Panama block and 2s. 6d. for good quality Tumaco.

The London Building Trades Exhibition.

WE visited the International Building Trades Exhibition at Olympia at the invitation of our old friends the Atlas Preservative Co., Ltd., who had a prominent exhibit in the gallery, which was well worth a visit, for there you saw the real thing, i.e., the originals of their telling advertisements of untreated woods from the tropics quite spoiled by insect pests, dry-rot, &c., and the same kinds of wood sound and whole, thanks to the preparations with which they were treated before being used. At the rear of their stall, the firm had an excellent miniature Cinema, in which the "movies" were utilized to show how the wood was treated, and then what a check to fire such treated wood offered as compared with untreated material. One reads much of such things, but the lesson was certainly driven home much more clearly by means of the pictures shown. Altogether we had a most profitable and entertaining half-hour at this exhibit.

Wandering on, we came to Messrs. Weeks' exten-

sive stand with hand and power sprayers of all sizes, some quite young engines and boilers. They are used for a variety of purposes, as well as for spraying plants; for instance, to water potatoes and such crops, but to us, always on the outlook for the latest and best thing in spraying apparatus for tropical tree and shrub pests, any other use takes a back seat. Want of time prevented our looking up the Four-Oaks Co.'s exhibit. We shall hope to see them at the Agricultural Hall next month.

Then we encountered the Venesta stall, always a "terror" if you are pressed for time, as we were on this occasion, but for all that we were obliged to have a look round, especially as it was some time since we have seen any of their exhibits—and this reminds us. Tropical experts and those supplying Overseas' areas with buildings of any kind should pay far more attention and take more interest—financial as well as personal—in these exhibitions as they are run by first-class men; by the way, the same experts in some cases are responsible for the Rubber and Tropical Exhibition, so what more need be said? The stands have so much to teach you, year by year, as to the latest improvements in fire and heat-resisting building material, as well as in interior fittings and decorations which are entirely suitable for the tropics and sub-tropics, however useful they may be elsewhere. This being so, why do not Trinidad and the other West Indian islands exhibit specimens of their marvellous wood? India also. And what about Dr. A. H. Unwin, that wizard among African timber experts? Why are not all these woods and their "keepers" on show at these annual International Exhibitions? Their presence would enable the leading builders, architects, furniture and fittings makers, as well as the master workmen, and—by no means the least important—those who order and pay for the finished article, to judge of the attractiveness and merits of the various timbers and to order them to be included in this or that contract about to be carried out. Now that the Rubber and Tropical Exhibition is running tandem to the older one, it is to be hoped that the Governments of the various Overseas areas having timber for sale will be represented not in competition with those firms who did show woods, marbles, &c., of all colours and kind, but as an auxiliary to them.

Brazil also could fill one end of the gallery were she to send a complete set of "samples," full sized as well as small ones. We hope to see such exhibits next year.

But we are forgetting the Venesta stall which generated some of these thoughts. Here the tropical house builder, factory builder, or office outfitter must have found many articles of use and ornament. We have never dwelt in marble halls, as is the case with the offices of the Venesta Co., but we have slept in *tapia* huts and wooden erections, all cracks and crannies, full of insects and filth, and when you see a Venesta board made to take the place of such abominations, you wonder how ever you could have endured the other. All these and many other thoughts (some of which still make you feel cold down your back) always cause us to take the liveliest interest in building material. We advise others to do the same.

Paper from Bamboo.

MR. RAITT'S* PAPER AT THE SOCIETY OF ARTS
(LONDON).

IN these days when the economic development of the Empire is, very rightly, one of the main planks of Imperial politics, it is to be hoped that the paper by Mr. William Raitt (commonly known as the paper-pulp expert, but officially as cellulose expert to the Government of India, attached to the Forest Research Institute, Dehra Dun, India), will be widely read. It might have been a little less technical and more inclusive of the productive or raw material side of the question; still, as it stands, it is quite intelligible to the forestry student and general planter, and clearly shows the difficulties that bestrew the path that leads to the utilization of bamboo on a world-wide scale as well as pointing out the advantages. The complete paper as well as the discussion that followed will be published in the *Journal of the Royal Society of Arts* at an early date if it has not already made its appearance.

According to the information given, the world's consumption of paper in 1913 was estimated at ten million tons annually, increasing at the rate of 25 per cent. every ten years. It must be now nearly twelve millions, or would be if the supplies were available. Of this about 80 per cent. is produced from wood—coniferous wood and preferably spruce. In 1913, although there had been a slow but gradual appreciation of values during the previous ten years, it was still possible to deliver chemically prepared pulp in this country at £9 to £10, and mechanically prepared, or ground wood pulp, at £5 10s. to £6 per dry ton, and newsprint paper could be produced for a penny per pound. Now values are four to five times these figures.

As a result the Indian Forest Research Institute, as well as other bodies and numerous individuals, started to investigate the raw products of the world suitable for paper-making on a commercial scale. In India the F.R.I. found that only two small groups, both belonging to the *Graminæ*, are economically sound as regards the quantity and quality of their cellulose and the manufacturing conditions under which they can be exploited. These are bamboos and a few Savannah grasses. But, though few in number, in the aggregate they mean something considerable. It is, I think, claims Mr. Raitt, a modest estimate to say that from bamboo, taking only that which is available under possible manufacturing conditions, Burma, Bengal, and South West India could produce ten million tons of pulp per annum, and Assam, from Savannah grasses, three million. India could therefore produce pulp for the whole world. Consider also the growth conditions under which this is obtainable. To grow a spruce or fir tree to pulp-wood size, takes from forty to sixty years, with the result that a factory which may at its start have its supplies at its back door finds these, year by year, receding into the distance with constantly increasing transport

costs. Bamboos and grasses come to maturity as yearly or eighteen monthly growths, and all you have to be careful of is not to reduce the reproductive vigour of the plant by too frequent cropping. With bamboo this may mean a three to five year rotation of cropping and with grasses two to three years. We must therefore have a sufficient area to exploit to allow of these rest periods (and also for the very large local demands for building, fuel, fences, &c.—Ed., T.L.), but that only means that for a ten thousand ton pulp output per annum with average figures for yield and rotation, a 20,000 acre reserve will keep a factory going in perpetuance—a vastly different condition of affairs from those governing a wood pulp installation which lives on its capital from the start or must adopt a re-forestation policy, which reacts badly upon costs.

Whilst Mr. Raitt was compiling these notes a second Indian authority, Mr. L. Subramaniya Aiyar, a chemist, was writing an article on the same subject for the *Business World* of Madras, for March, under the heading of "A Plea for more Paper Mills in India." Here we are reminded of a fact that most people lose sight of, viz., the production of cellulose is perhaps of more vital importance as the raw material for munitions of war than for the Press of the world and printing generally, whilst its use in the celluloid and artificial silk trades also renders its existence and regular output extremely desirable.

All sides agree, therefore, that the present supply of cellulose is much too curtailed and must be increased no matter where the raw material comes from. We, of course, would like to add to this that, so far as the Empire is concerned, supplies for our own requirements should come from our own resources—if we have them. Mr. Raitt and others tell us we have. This is shown in the second quotation from his paper, and since the West Indies is said to be planning to cultivate bamboos (in Trinidad), surely it must be feasible to make paper on a very large scale in India where one only has to conserve the perfect forests of this grass without the expense of planting out and cultivating the crop at all. Like the rubber tapper in Brazil or the oil-palm native in West Africa, all that is necessary in Burma, &c., would be to clear your walks for cropping and your roads for transport. It would also pay, we feel sure, to gradually plant up bare patches or replace dead or undesirable stools or clumps of bamboos, which encourage mosquito and other pests, and so are not desirable, beside taking up valuable room.

What we hope Mr. Raitt and other bamboo-for-paper experts will tell us in the near future are answers, and rather full answers, to the following queries, which are partly our own and partly based on queries asked us during the ten or fifteen years in which we have urged the utilization of bamboos, of sisal waste and banana fibre as the raw material for cellulose even when supplies of paper seemed more than enough and paper-silk hosiery was unknown.

(1) India, claims Mr. Raitt, could produce pulp for the whole world. Does this mean (practically) for ever from the areas now existing, or must fresh planting take place?

(2) In the same way as the spruce and other forest

* Mr. William Raitt, it may be remembered, was "Our Friend" in November, 1914, when he was becoming known here on account of his work in connection with bamboo for paper-making.

trees recede into the background and thus increase transport costs, surely with bamboos it will be the same even if only for the three to five years during which the spots nearest to the factory are "resting."

(3) Arising out of the latter portion of No. 2, how long can a root or stool in a bamboo forest be relied upon to produce fresh culms for cutting without becoming useless either through death or exhaustion and thus yielding weak and useless culms? When such roots are condemned, can they be blown out of the ground by explosives, or how can they be effectively removed in order to introduce a new root, and thus avoid the spot and finally the area becoming wasted?

Such a question may seem very much "up in the clouds" to-day, but the big sugar factories in Cuba, as we have pointed out more than once, are already fully aware that the cost (in labour as well as money) of transport is making intensive cultivation on the cane-fields more remunerative than the old-time extensive policy. It pays better to produce forty tons of cane per acre near the factory than twenty tons far afield. It will be the same in Burma and elsewhere when the pulp factories are started, hence the reason for the queries asked. When pulp is made from those bamboo forests on a large scale, will it (or will it not) pay to keep the output of culms per acre up to the highest possible level in order to decrease the cost of transport?

(4) Having decided to erect the factory, how much would the pathways (to cut the bamboos) and the roadways (to transport the culms) cost per hundred or thousand acres, and so in turn to the factory itself, because our next question is, what would the cost of a factory be (to make pulp, not paper) erected in or near a forest, per thousand acres of bamboo to be worked?

(5) Providing that pulp only (not paper) is to be made in such factories, would it pay to erect several smaller factories, one to each 5,000 or 10,000 acres, or only one large factory for the whole forest?

(6) All of which queries have as their *raison d'être* the idea as to whether the planting out and cultivation of poor land (for other crops) or otherwise suitable areas for bamboos can ever be carried out to pay? Only in the East, French or British India, &c., can forest supplies be considered. If paper or pulp making from bamboo is to become general, most of our enquirers, not being in India, claim that the bamboo must be planted in the same way as sugarcane. Thus we are anxious to ascertain if this can be done to pay?

(7) Do Mr. Raitt's figures as to a profitable price for the pulp (four to five times the old rates for £9 to £10 for chemically prepared and £5 10s. to £6 for mechanically prepared) still hold good to-day, in face of present freight charges and costs of labour and living in the tropics as elsewhere? This is a most important point, for until the cost price delivered (and also the selling price) be ascertained, no sensible man will want to start. How can he do so, since without such data no one can say whether paper pulp making from bamboos will pay or not, even if we know what the factory costs per thousand acres of forest growth or area planted?

There are other queries, but these are enough for

the present. On one point we have no doubt, viz., the whole question (of paper making from bamboo) is in every way a "live" one, and there are large numbers who want to see the industry established and become a great success, even if not for themselves.

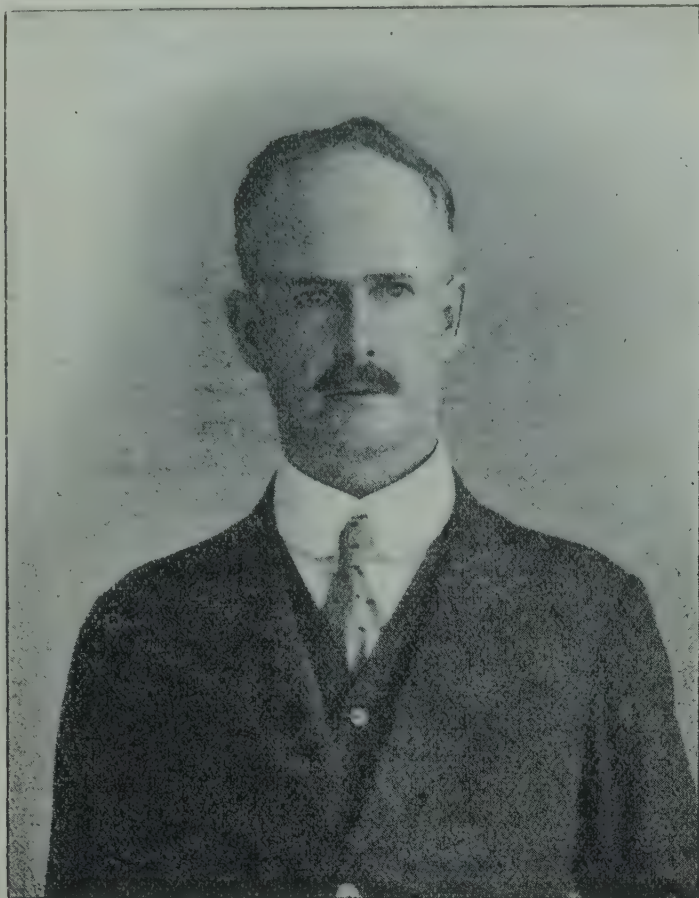
"Tropical Life" at the Play.

WE went to see Edna Best in "Polly with a Past." We liked this recent addition to our leading favourites so much in "Brown Sugar" that, wanting to see her in this new play, we found ourselves at St. James's Theatre for that purpose; it was even better than "Brown Sugar." "That must be a ripping play," a man told us who had not seen it; "a number of us were waiting for my people to come out, and hearing the audience laugh, it was such genuinely jolly laughter, that we laughed too—simply couldn't help it. It makes one almost afraid to venture inside." On this point, however, one need have no fear. The play is certainly worth seeing, and if Miss Best is good as "Polly," so are Messrs. Donald Calthrop as Rex, Henry Kendall as Harry Richardson, and Noel Coward as Clay Cullum. These are well backed up by Miss Alice Moffatt as Myrtle Davis, the damsel who reformed so vigorously that she lost Rex to Polly, and you leave wondering how she got on next time she secured a fiancé—if ever she did. Was the reformer reformed of her reforming mania?

It was pleasant to hear the members of the Institution of Petroleum Technologists say nice things of Professor Carmody at the Royal Society of Arts on May 10th after he had given us an excellent paper on "Trinidad as a key to the Origin of Petroleum."

If anyone could talk on such a subject, it is Professor Carmody. Like the historically silent farmers of the South Downs, he has, for nearly thirty years past—we believe he was in Trinidad when we were there in 1890-91—been ploughing his lonely furrows, lonely, that is, at the start, over the field of research in connection with the petroleum deposits in Trinidad, oil, coal, manjack, pitch, &c., and he has turned over much that is good and useful in his time. This was shown to be the case as speaker after speaker reminded us of how the modern technologists, like sea-gulls following the plough on the Downs outside Arundel, had made use of Professor Carmody's early work, and how much they and the petroleum world generally were indebted to him for what he had done to help them.

WE understand that Lord Leverhulme will entertain on Sunday, June 5th, at The Hill, North End Road, Hampstead, the Foreign Delegates taking part in the Rubber and Tropical Exhibition and Conference. Those who know the attractions of the gardens attached to "The Hill," and have seen the pictures and art treasures in the house itself, can vouch for the pleasure that such an invitation means to lovers of Nature and art. Whilst discussing tropical development work in general, the visitor can stand under a trio of splendid beech trees and have an uninterrupted view across the Heath to Harrow and Hendon, which has no equal that we are aware of.



"Tropical Life" Friend.—No. 191.

DR. E. J. BUTLER.

*Director of the Imperial Bureau of Mycology
at Kew.*

WHEN we went down to Kew to pay our respects to Dr. Butler, as soon as we heard of his arrival, we were glad to make the acquaintance of his recent book on "Fungi and Disease in Plants," which we believe to be the only work of the kind to give so complete and general a survey of the subject discussed so far as the East is concerned. Yet the author appears to have omitted all the tree crops except rubber, which has been dealt with so fully, that one hopes other tree crops may be dealt with on similar lines later on. Included in one work, it would have made a heavy volume, and practical men do not care for such things; it also would have taken much time to prepare. Far better, therefore, to give us a handier and smaller (but none too small a) book at once than to make us wait for an awkwardly large book later on, when a second work no larger than this one would be far better in all ways. We hope cacao planters out West, especially on the Gold Coast, in San Thomé, Bahia and, above all, in our West Indian island of Trinidad, will get this work—to start with—and then clamour for a similar one to include cacao. With *phytophthora* alone such a book is rendered necessary, but has still to come, we hope it will not be long delayed. A happy omen that it will not be may be found in a beautiful brood of the fungus on some choice soup jelly in Dr. Butler's laboratory, so that the doctor cannot say that he has never made its acquaintance. Judging by the reception given to the book already published, a similar one to include cacao fungi should be and would be warmly welcomed, as the area under cacao is far more extended than that under cultivated rubber.

Now that Dr. Butler, with his new work, is if

possible more closely connected than ever with tropical plant and crop diseases, his knowledge of areas beyond Indian will be developed, although it cannot for some time be expected to equal or even to approach his wonderful knowledge of the East and their many fungoid pests. As we understand the present arrangements, "Our Friend," or rather, his Bureau at Kew, will serve as a general clearing house for information and for the examination and identification of specimens, not only from India, but from the Colonies and our other overseas possessions. And so the Bureau at Kew will do for mycology what its great twin brother up at South Kensington has for long been doing for entomology, and having attended the Conference last year (see TROPICAL LIFE for June, 1920), we again say, as we then said (p. 89), a quicker, surer and safer World's Peace lies behind the modern entomologist and mycologist than the public can ever realize. This is why Labour and Capital must learn to realize the importance of the work being done by Dr. Marshall and Dr. Butler, and value and pay for it at its true worth, economic as well as social.

Born in 1874, "Our Friend" still has many years in which to do useful work ahead of him. Like the present Director of Kew, he is a medical man, having studied medicine at University College, Cork. After taking his degree and having won a travelling scholarship in biology, he wandered forth, and spent a useful couple of years studying the diseases of plants, instead of men, in France and Germany. He had learned under a good master at Cork—Professor Marcus Hartog—and later on under such men as Van Tieghem, Cornu and Poirault in France, and Oltmanns in Germany, to say nothing of Dr. D. H. Scott at Kew. A good schooling for an Imperial biologist. The first year of this century found Dr. Butler at work out East as Cryptogamic Botanist attached to the Botanical Survey of India. The next year found him established as Imperial mycologist, and attached to the recently formed Department of Agriculture in India, and since then, 1902 until 1920, he worked continuously for India, out of which period he was, from 1905-1920, at Pusa, the Mecca of all such workers. During 1919-20 he was Joint Director of the Research Institute, and for a short time—in 1920—Agricultural Adviser to the Indian Government, when he was appointed for three years to organize the new Imperial Bureau of Mycology at Kew, where he started last October.

His writings on fungi and diseases have been numerous, but always important. He has worked, so far as we know, chiefly on sugar-cane, on coconuts (especially in connection with bud-rot), and other palms, on rice, and also on rust in wheat and other diseases. He was deputed to report on the Agricultural Department of the F.M.S. in 1918, and spent four months on the work over there principally among the rubber trees. Who does not know—in the rubber world—of the report that he issued as a result of this work?

Dr. Butler is the *doyen* of our Overseas mycologists still in harness, but the profession is still a young one. We have about fifty trained men preaching its doctrines. When there are 150, "Our Friend" may feel that he has a fairly adequate staff. Already they are badly needed.

Business Notices.

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2.—All literary communications should be addressed to the Editor, and accompanied by the necessary stamps for their return if not accepted.

3.—All business communications and payments, either for subscriptions or advertisements, should be sent to the Publishers of TROPICAL LIFE. Cheques to be crossed The Union of London and Smiths Bank, Ltd.

4.—The Subscription, which is Twenty Shillings per annum, may commence at any time, and is payable in advance. Life Subscription, £10.

5.—The Advertisement Department is at 112, Fenchurch Street, E.C., where all inquiries respecting advertisements, charges, &c., should be addressed c/o the Manager of the Department. At the same time will advertisers kindly note that all copy and blocks for advertisements must be sent to 112, Fenchurch Street, E.C., before the thirteenth of each month, failing which, insertion of same in current month cannot be guaranteed.

6.—The Publishers reserve the right of refusing any advertisement, or the matter or "copy" sent in for any advertisement. They would also be glad if advertisers would refrain from using the "powerful" or extra heavy type that some adopt at times. Doing so renders the paper unsightly, and is unfair to the other advertisers as well as to ourselves. If all used such type, no one would benefit; to allow some to do so and not others, would be unfair.

7.—Advertisers are only entitled to three changes of matter in the year of twelve issues, unless (1) they send electros for insertion, or (2) are willing to pay for the cost of setting up the advertisement. Owing to present high cost of composition and printing work we cannot depart from this rule.

8.—Changes of address should be promptly notified.

9.—Non-receipt of copies of the Journal should be notified to the Publishers.

10.—The Journal will be issued on or about the twentieth of the month.

The Managing Director and Editor of "Tropical Life" will be pleased to consider the printing and publishing of useful technical works on Tropical Agriculture, Medicine, or other subjects dealing with the development of our Colonies and the Tropics generally, as well as similar books dealing with Russia, Japan and the East, whether the books are to be published in English or other languages.

Tropical Life.

MAY, 1921.

The Future of Tropical Development—and the Need of Real Workers.

WITH the advent of Dr. Butler to Kew, supporting Dr. Guy Marshall, his twin scientist, as Director of the Imperial Bureau of Entomology at South Kensington, we sincerely hope that with their help the road to the tropics will be made to appear safer and clearer to the average man on this side with sons (and daughters) to place out in the world and become useful citizens to the Old Country, and active helpers in the work of developing and consolidating the prosperity and economic resources of the Empire. Already to most of us, the haze that hitherto obscured the road leading to Imperial Development by individual effort has been lifted, and when the Agricultural College in the West Indies (and also the one to appear in Ceylon) is in working order, then the road to a successful career in the tropics should be as clear, as safe, and as irresistible to the ordinary citizen and his sons as the much-talked-of road to wealth and fame in London has been in the past, ever since we first heard of it in the days of Dick Whittington and before that.

Hitherto it may not have been altogether unwise, even if it was unpatriotic, for the father of a family to want his son to go anywhere and do anything so long as he did not "hank" after a life of adventure in the tropics. We have had more than an average knowledge of life in the torrid zone since 1885, and of the careers that have gone to build up those countries until they have become the great sources of wealth to the Empire that we know them to be to-day, and on that account we know, the same as Dr. Butler and his colleagues do, that in these days hard steady work, and not romantic adventure, is what the tropics need and must have if they are to continue to make progress. Imperial development is rather a race of tortoises (and oxen) than of hares. Swifter animals attract more attention whilst in motion, but they drop off long before the goal is reached, whilst the others keep on. It took ten years or thereabouts to "pull-up" the yield and quality of Indian wheat, rice, &c., and "gassy flyers" cannot hang out so long as that. Knowing this, and because the British, and especially the residents of the U.K., are slow, steady and sure, we believe with such strong links with the tropics on the spot (in London) as Dr. Butler and Dr. Marshall clamouring for helpers (who want more than an office stool or typewriter to live on), that we shall secure those recruits for the army of Imperial developers which we need so badly and yet have had so much trouble to secure in the past.

We are quite sure that these practical scientists must give confidence to those anxious to know what such careers have to offer, especially when their appeals are supported by practical men like Mr. J. W. McConnell (see the leading article in our March issue, p. 42) calling for selected men to come forward and help. Properly organized and advertised, the response to an appeal for trained tropical experts should exceed even the now historical rush to join the Colours and win the Great War. It should be as easy, and more easy to secure a willing army of suitable men ready to come forward to help win the Peace by developing the resources of the Empire, once they can learn from men on this side what is expected of them. We would again remind our readers how very fully we discuss this matter in our book, "How to Pay for the War—by Developing the Resources of the Empire," especially in the fifth section on Education, as on p. 113, re training the natives to do the work expected of them, as well as the whites (and also the natives) who are to act as leaders to the others, where we say: "We must teach them how estates should be managed and pests, &c., kept at a distance; this is bound to be the best policy in the end. By such a course we shall turn out experts of all classes, each equally useful in their own way, whether as planters, plant-doctors or research chemists, and the great strength of such a movement will be (as with the men at the war) that the best ones who come out top will be drawn from all ranks and conditions of men. Under our scheme, everyone will have equal chances. Steady work, strong limbs, sound health, tenacity of purpose, keenness to seize every opportunity, are the monopoly of no single class, or if they are, they are found—most frequently—in those who have never had all that money could buy"; or again, as on p. xv of the

Introduction, "What, as I have already said, is at present lacking, is the continuity of training organizations to take the children from the very beginning of their educational career (in the U.K. or elsewhere) and to fit them out both in mind and body to be able 'to do their bit' to help develop the resources of the Empire abroad and put money in the National Exchequer at home. . . . Everybody knows that if we are to develop the resources of the Empire and add to the existing wealth of its people, three things are needed:—

- "(1) The latent resources to be developed.
- "(2) The capital to develop them.
- "(3) The labour, both scientific and untrained, to carry out the schemes proposed."

We undoubtedly have No 1, and can manage No. 2. The untrained labour in No. 3 is not as plentiful as one would like it to be for when the world will be in full swing again, whatever surplus there may be at the moment. But as to the scientists and leaders of the untrained masses, of these we are already short in supply; think therefore, unless many more come forward to help, what will happen when treble and quadruple the present number will be needed in a very few years' time, not only to carry on the work of yesterday, but also of to-morrow, when the shortage of labour will have to be made up by means of science and applied mechanics so that machines can help and even replace human workers, and when we shall need more skilled men than ever to each thousand raw labourers employed.

What the Empire particularly needs at the moment are travelling experts who, having first been trained to plant-disease, or soil and crop improvement work, then serve a turn of three or five years at several stations abroad, both in the East as well as in the West, and after that come home with a knowledge of most crops and producing centres to work as junior "surgeons" under Dr. Butler or Dr. Marshall over here still perfecting and extending their knowledge. Meanwhile they are available to go wherever the call comes from as consulting experts in connection with some new or particularly obstinate disease or other trouble that may arise; arrived in the tropics they would still work in collaboration with their chiefs at home. They may go for a week or two only, as Dr. Ulrich from Trinidad did to San Thomé, or for a more indefinite period, as with Mr. Rorer in Ecuador, Mr. Martin Leake or Mr. Ballou with cotton in Egypt. At present such travelling experts are missing, and to take good men from their present work as we now have to do—which must suffer through their absence—or whilst they are on leave, has nothing to recommend itself in our mind. In fact the sooner such tactics are stopped, the better for everyone, including the Empire itself.

All this and more we hope to see done with Dr. Butler, our leading mycologist, at Kew, and Dr. Marshall, our chief entomologist, in London; and it will be done we feel sure, if these men enjoy the confidence they deserve and obtain the financial support such a policy requires. Whether labour will continue to eat up the cash that is needed to finance such necessary work remains to be seen; we trust not. We sincerely hope that the doles to the Don't-works (un-

employed) and ever-increasing wages to the Won't-works (strikers) will soon cease, and all will be busy manufacturing the crops of the tropics into articles of trade, and also producing increased wealth to pay for further development work instead of eating up the money that should be allocated to such uses.

If we speak correctly, Dr. Butler is only here on loan from the Indian Government, but long may he remain so if he is, although we feel sure, knowing how little the value of such work as he is doing is appreciated over here, that his present pay is extremely satisfactory to all but the far too willing enthusiast who is willing to sacrifice a portion of his legitimate salary merely for the pleasure of working on his beloved, if dangerous, fungi on this side after a long spell in India—a spell, we believe, running into twenty years at least. One day perhaps the taxpayers on this side will learn to realize that life would be easier and food and clothing far less costly because more plentiful if practical scientists instead of miners received £800 to £1,000 a year, and beginners were paid twenty shillings a day instead of road sweepers or other epiphytes of our innumerable municipal councils, who, judging by our local rates and taxes, must be receiving such sums. Vegetable fungi and sucking bugs on trees of economic value are not the only danger we are up against in these days. There are several animal sucking-pests we know of who are doing far more harm to trade than even the moulds and weevils which, as we pointed out last June when discussing the Entomological Conference, eat up or spoil our food supplies to the tune of many millions a year. And yet these trade-disturbing men receive big salaries, whilst others who are increasing our wealth or assuring future food supplies to meet bigger demands are paid quite small salaries, we believe in comparison with the trade union leaders, considering the value and results of the work they do, when foolish enough to come home "to roost."

No lotus-eater need apply. The man or woman who insists on working so many hours a day and as few as possible, with steadily increasing wages, whether they deserve them or not, will never be any good with tropical (or any other real) work. A certain clique or class of Capitalists, and especially Labour men, seem to have got the Empire by the throat at the moment, and are undoubtedly robbing us of every cent. they can wring out of our pockets without giving us any adequate return. We have yet to see whether we can shake ourselves free of these garotters before all our strength goes. Capital, having some brains, would no doubt let us off provided they feel sure that it would prove more profitable to themselves to do so; but Labour, blind, untrained and heedless, seems unable to realize that if they persist in bleeding science and enterprise milk white, mere brute force will also collapse just as completely and more quickly than brains and knowledge. The latter, however, need not be completely choked, they can escape elsewhere to those who value their talents and appreciate their anxiety to help. It may be our duty to help our own country even before humanity at large, but if, to do the first, means slow but certain strangulation as soon as your money or help is exhausted, there is still humanity at large left to work for, and it should be

your aim to do so, and when you do to put your best work into the task if only to help others escape from the grip of the tyrants now threatening ruin to our trade at home.

Vegetable Oil Notes.

It must have been apparent for a long time to any rubber (as well as to any cacao or cotton) planter who has been carefully watching the prices quoted in this journal month by month how very much better copra (and also coconut oil) has done than any of the above products since the great "run-up" in values at the beginning of last year and throughout the slump which is still with us. Not only has the price of copra been good, with £25 as the minimum, but the article has always sold freely and not dragged. As a result, instead of the world's stocks of copra, visible and invisible, piling themselves up, as with rubber, cacao and cotton, it seems at the moment as if larger supplies would not come amiss.

We believe that some 11,000 tons of copra were sold at or near top prices early in May—say 6,000 to Germany, 4,000 to Holland, and 2,000 to U.K.; the idea being that these were all for account of crushers and none for speculation. Furthermore, if prices later on sagged a little, Ceylon, if not F.M.S., was above £32 at one time, and the demand was expected to continue on account of the rise being due to a genuine need for the article sold, thanks to the increasing popular demand. No one can pretend that soap or candles are at popular prices, nor are rubber articles, cotton goods, and chocolate or cacao of decent quality in any form, the retail costs (if not the whole sale) of all these articles are needlessly high, and so sales are checked and producers suffer, especially the rubber, cotton and cacao planters.

Now the retail price of margarine has been steadily dropping for some time although butter keeps above 2s. per lb., to which level some thought it would have descended by now. We are still told of those huge accumulations of Danish butters expected, but so we were in January or February last, and until the butter is actually in the shops on sale, over-much credence need not be placed on this threatening competition with margarine which, being down to 9d. per lb. for the cheapest—and quite good—quality certainly deserves to hold its own against all comers.

POPULAR PRICES YIELD PROFITS TO PLANTERS.

Now if margarine, with copra well above £25 a ton, can be retailed at 9d. and 10d. for good edible quality (we prefer the 10d. make of one firm's to that at 1s. 4d. and 1s. 6d.), so can piece cotton and sewing cotton be sold at equally low prices. Can it not be claimed that if the present retail prices of all goods made from rubber, cotton, cacao and sugar were cut down to an equal extent in comparison with their pre-war selling prices that demand would be stimulated and markets rule high as with copra? Judging by the cost of the raw material this could and should be done, and then you would see how the market for the raw material would improve. But of course 300 per cent. would be nearer the cut in some cases to be made, say, with cotton goods, to make them as

cheap as margarine is. The manufacturers, the wholesale distributors and the retail trade of this country, if they do not change their tactics will seriously check the prosperity of the tropics, for unless they put the price of the finished article within the reach—and well within the reach—of the public purse, as is the case with margarine, the outflow of the raw material cannot be satisfactory. As we have stated before, it is difficult to say which of the present three kill-trades are most to blame, but the retailers seem to be the worst offenders. We have heard of 20 per cent. cuts in cotton wholesale, whilst the shops seem as dear or dearer than ever, both in prices asked and values delivered. It has become a scandal both to the housewife at home and to the producers abroad, and at the time of writing there are no signs of any change. This question is also discussed in our Trade and Finance article.

WHY NOT SQUEEZE HOLDERS OF MANUFACTURED GOODS AS WAS DONE WITH RAW MATERIALS?

Yet if prices were to be on as popular a basis as margarine, would not the raw materials be at the same high level as that of copra, *because of the public demand*? At present there is no public demand equivalent to that for margarine, we are buying only what we need, and that very unwillingly. A remunerative price for the raw material does not necessarily mean a high price to the retail buyer, otherwise margarine would be dear, and rubber and cotton goods cheap instead of the other way round. Prices on the level of 3s. per lb. for best-grade rubber or 70s. to 80s. for medium cacaos (West Indian and Bahias) are by no means unreasonable, and were the goods manufactured from these raw materials sold as cheap in proportion to the purchasing capacity of the public as margarine is, we should soon have the value of the raw material up to levels equally satisfactory as the price of copra. We believe the retail trade to be 80 per cent. to blame in this matter, but whoever is at fault, the sooner the scandal is stopped and popular prices established all round, the better it will be for everyone—although some seem unable to realize this. The profits made by the shops and the manufacturers (with a few unfortunate exceptions, possibly due to their having been over-grasping at times) must have been enormous in comparison to their pre-war turnover. To fight shy now of cutting their losses is cowardly, and to hold up an important section of the commerce of the world, for that is what it amounts to, is so incredible that one can but wonder such a thing is tolerated, since every householder and housewife assures you every day of your life that this is being done. It cannot, therefore, be claimed in this case, that the public are ignorant of the causes of their troubles in money-earning and spending, or that those causing the trouble are not aware of how lack of the public's custom is ruining the prospects of planters.

A NEW EXTRACTION PROCESS.

A new concern was being established in Karachi in March for the manufacture of vegetable oils by a process new to India. The machinery has already been ordered from England and is expected to arrive before the cold weather, but details are lacking as to what

oils will mostly be treated and as to the names of the makers. To know this, would probably be to let the "cat out of the bag," which the promoters of the scheme have no wish to do.

LONDON PRICES.

This table is of more interest than usual, since it shows the "run-up" in values from the lowest point touched £25 to £26 per ton.

MAY VALUES.

COPRA PER TON—SPOT.

										London		Ceylon		Marseilles		Hamburg and Rotterdam.				
										F.M.S.						F.M.		F.M.S.		
										£	s.	d.	to	£	s.	d.	£	s.	£	s.
May	18	...	30	0	0	to	30	10	0	31	10	28	10	30	15*					
,,	14	...	30	0	0	,,	—			31	5	28	10	30	10*					
,,	11	...	29	0	0	,,	29	5	0	30	0	28	0	29	0*					
,,	7	...	30	10	0	,,	—			31	15	28	15	30	15*					
,,	4	...	31	0	0	,,	32	0	0	32	5	29	0	31	15*					

COCONUT OIL PER TON.

		Ceylon						Cochin						
		Spot				For shipment		Spot				For shipment		
		£	s.			£	s.	£		s.			£	s.
May	18	...	65	0	...	54	0	...	75	0	...	55	0	
„	14	...	65	0	...	54	0	...	75	0	...	55	0	
„	11	...	65	0	...	53	0	...	75	0	...	55	0	
„	7	...	65	0	...	52	0	...	75	0	...	55	0	
„	4	...	51	0	...	50	0	...	68	0	...	55	0	

OTHER OILS PER TON.

		Castor Firsts		Ground-nut Crude†		Palm kernel Crude Hull spot		Cotton seed Crude Egypt	
		£		£		£		£	
May	18	...	54	...	37	...	46	...	35
	14	...	54	...	37	...	46	...	35
	11	...	54	...	36	...	46	...	35
	7	...	54	...	36	...	45	...	35
	4	...	52	...	36	...	45	...	33 10

* Rotterdam only. Hamburg not quoted. † English crushed, naked.

Since the above was written, the market has been steady with a good all-round demand. It would be difficult to say whether prices will rise or fall in the near future.

Tropical Life "Friends" on the Move.

MR. M. T. DAWE having made two journeys in Colombia and drawn up reports on the economic possibilities of the areas visited—reports that everyone interested in Latin America has secured and studied*—went to the Gambia and did the same for the British Government *re* that Colony. Now we have a card reporting his arrival in Portuguese Africa, where he is to inspect and report upon Angola. This will take time, but the work will be well done, for Mr. Dawe has always been a great traveller on such missions, and Angola has great possibilities. On this account the report should be interesting reading. We trust an English version will be published in the same way as was done with both the Colombian reports. Another reader is at Hong-Kong, en route to Shanghai, whilst a third has reached Nairobi to go further afield and plant coffee.

* If there is an exception to this rule, copies of Mr. Dawe's second Colombian report are still obtainable, we believe (price 1s. 9d. post free), from Mr. José Medina, Director Bureau of Information (of Colombia), 7, Sicilian Avenue, Southampton Row, W.C. It is also being reprinted in the *Colombian Trade Review*, same address, price 1s. monthly.

Then comes a note from Mr. J. L. Hermessen, who is prospecting in Venezuela around Maracaibo. The voyage as far as Trinidad, he writes, was most enjoyable. At Curacao, four days from Port of Spain, a specially built American boat took them on to Maracaibo, as no vessel of ordinary draught can enter that port owing to the sand-bar at the entrance of the so-called Lake of Maracaibo.

The setting around Maracaibo is very picturesque when approaching from the sea, distance lending enchantment to the view of the red-tiled roofs, the white domes and towers gleaming in the tropical sun, whilst the shore is fringed with coconut palms. Once ashore, you notice that Maracaibo has features resembling such cities as Vera-Cruz and Guayaquil—in their pre-sanitary days.

In Trinidad, unfortunately, Mr. Hermessen did not have time to visit the Botanical Gardens. "I shall look forward to the time, however," he writes, "when I can do so, after I have put in a year or two's work in the wilds of Venezuela."

"I did, however, have the pleasure of meeting Eugene André, a fellow F.R.G.S. and a great collector of orchids, in which I am also interested.* The author of 'A Naturalist in the Guianas' (which is on the shelf above your desk) has long been known to me by name. I first saw his book at Mr. J. C. Harvey's place—with its (nearly) two thousand orchids—on the Isthmus of Tehuantepec, where too I first saw *TROPICAL LIFE* some fifteen or sixteen years ago. Mr. André showed me his orchids and gave me much instructive information about Venezuela, &c.

"I am now at the village of Altagracia, on the eastern side of the lake. It is a low-lying, flat and arid coastal region, with long stretches of bare sand and swamp, the latter impassable in the wet season. The vegetation consists of giant cactus, curious leafless flowering trees and tangled thorny undergrowth—all types characteristic of extreme heat and drought. Behind this desert-like littoral rise the foothills of a mountain range, whose sombre heights are now cloud-topped in portent of coming rains."

WE have referred more than once to the good work being done by Messrs. Tata's to push the scientific cultivation of sugar and other crops in India. Here is an account, taken from the *Indian Planters' Gazette*, of another attempt to work in the same lines.

Through the energetic enterprise of Sir A. K. Jamal two sugar factories will be opened within a few months in Burma, one at Lamaing village fourteen miles north of Mandalay and the other at Lombo six miles south of Mandalay. The greater part of the plant is there, but some has still to arrive; however, it is expected shortly. Burmese labour is at present employed on extensive areas of sugar-cane lands in the Sagaing and Mandalay districts. When the factories start operations a long-felt boon to the province will be attained, doing away with the necessity of depending on outside resources for the supply of an absolutely necessary commodity.

* As a matter of fact, Mr. Hermessen has a considerable knowledge of orchids, and has contributed important articles to "The Orchid," and other papers on them.

At the Rubber Exhibition.

MESSRS. FRANCIS SHAW AND CO., LTD., tell us that their Stand at the above Exhibition will be used solely to demonstrate the Hunter Drying Stove, an American apparatus which is certain to draw crowds in times like the present, when everything to do with drying is being eagerly discussed and examined. Messrs. Francis Shaw and Co., Ltd., are handling this Dryer within the British Empire.

The stove, it is claimed, has been successfully used for drying and conditioning rubber in America for many years. We hope to see a sample stove in full working order. The only "Shaw" rubber machinery on show will consist of a couple of washing machines, which will be on the stand of their principal agents, Messrs. Guthrie and Co., Ltd.

Messrs. James Carter, Ltd., of Stalybridge, tell us that they will be exhibiting a complete rubber-mixing and sheeting unit, including a heavy double-gear, two-speed, mixer-sheeting machine and a vertical type double-helical reducing gear unit. Also a standard washing machine, with chilled cast-iron rollers and aluminium guide-plates and trays, as well as a standard plantation washing machine and two forcing or tubing machines, one with a $4\frac{1}{2}$ in. diameter scroll, and the second with the scroll 3 in. in diameter.

Joseph Baker, Sons and Perkins, Ltd., which is an amalgamation of the well-known firms of Joseph Baker and Sons, Ltd., of Willesden Junction, and Perkins Engineers, Ltd., of Peterborough, will be exhibiting a comprehensive range of their patent automatic rubber washing, masticating, mixing and sifting machines, which we have seen at work in Birmingham and greatly admired.

Their "Universal" Automatic Rubber Washer is now so well known both to the planting and manufacturing side that a description here is not necessary, but the Patent "Universal" Automatic Rubber Masticating and Mixing Machine calls for careful attention as it represents a very big advance on the mixing rolls, and the firm therefore anticipates having goodly crowds round their stall for the purpose of examining this machine in particular.

A visit to their exhibit, therefore, it is considered, will prove of great interest both on account of the new machinery on view and also because the firm is one which, having built up its tremendous business by being to a very large extent pioneers of highly successful machines, is sure to have further improvements in the old favourites.

We had hoped to give further details, but have been obliged to hold these over until next month.

ACCORDING to the *Journal of the Japanese Chamber of Commerce* at Yokohama, sixty sheep, imported by the Japanese Government from England for breeding purposes, recently arrived in Japan. Among them were twenty-two Cheviot sheep, bred in the mountainous district of Scotland, and are the first sheep of the sort imported into Japan. The animals will be distributed to the Government sheep farm at Takigawa and Tomobe.

Trade, Politics and Finance.

JUST a year ago pressure from above was undoubtedly brought to bear on all the produce market men outside official circles, with the result that they had to sell when the market could not and would not buy, and no regard was paid to the huge losses this caused at the time, and has caused since to those producing or handling the raw materials. Thus it has resulted that rubber touched 9d. per lb. not long since, and all, or practically all, tropical produce has been equally hard hit. Copra is somewhat of an exception, but still even here £25, against £75 as the top price, is not bad for a drop, but of that more anon.

Since it was considered necessary to force raw materials to sell out, and on the whole we would claim it was the only policy to pursue and to do at once, why stop there? This is what the man-in-the-street wants to know. Having finished with Section No. 1, why did we not continue and do to the buyers of these raw materials at "knock-out" rates what was so relentlessly done to the producers and distributors of the raw materials?

We have always claimed that of the two branches of industry, the one which produces the raw material is more important than the one who manufactures and sells. The former undoubtedly brings entirely new wealth into the world, the second body only utilizes that new wealth to its own profit. Still, let us suppose they are of equal importance, why then should the manufacturers and distributors be allowed to hold up the trade of this country as they have done and are doing (thereby increasing the loss to the producer) because they "funk" loss, which must come sooner or later? It is not kind to these mistaken men to allow them to drag on as they are doing, for when their slump comes it will have gathered strength in the waiting. Also, it is extremely unfair, if not actually dishonest, to the buying public to continue such a policy.

Since no steps were taken to compensate the planters for their losses when the "cut" was forced upon them, there is no need to talk of any compensation to the manufactured side of the bargain either, but as we stand to-day, it would have been far wiser and cheaper to have "collar-pruned" all round and "— the consequences," as was done with raw materials, than to force the public to continue to pay boom, and above boom, prices as we still have to do, and will do for another year at least. Even then retail values will probably be above the parity of the raw material abroad.

It does not matter to the Empire striving to develop its economic resources which gang it is that threatens to stifle them at their work, whether official, finance, manufacturer, labour, or distributor. In any case it is equally disagreeable. What we of the tropics and sub-tropics know is, we were unfairly dealt with a year ago; we are, through the hold-up in the retail trade due to unreasonably high prices, being dealt with unfairly to-day, and there is every sign of such a policy continuing until Europe fights (in the markets) for tropical produce and forces everyone, through her competition, to pay a fair price for what they need.

Margarine alone has been sold at popular prices, i.e., in comparison to the very restricted purchasing power of the general public (soap is still too dear), and yet copra alone is selling well above the cost of production, and furthermore, it sells freely, and that is what we want above everything else.

Someone in this U.K. of ours has dammed up the trade of the Empire by trying to shirk their share of the post-war losses. They have shown, and are showing, no consideration for the appalling harm they are doing to everyone concerned but themselves. How long will producers abroad and the general public at home allow this to continue? It is no consolation to think that when the shell-out does come the losers will deserve all they get. You cannot help feeling that whatever happens to them the Empire has been mulcted many thousand pounds to save them one, and perhaps to save them ten shillings only; also, that when they suffer through their selfishness, others already hard hit have to suffer still more through them.

Coming now to market reports, we must own that, on the whole, there is no improvement, and were it not for the Continental demand we should be worse off than we are. This, as shown elsewhere, has pulled up the cocoa market a little; two or three such moves will place it on a satisfactory basis. May cotton and rubber meet with equal luck, and that secured, may it last; at present there is no appearance of even a start being made.

With coffee, Mysore has been selling up to 126s. for peaberry, 116s. for good bold, and at 90s. to 101s. 6d. for middling, Nairobi at 78s. to 105s. for peaberry, and 100s.-102s. for good middling to good. Spot cotton is under 8d., although 8.44d. is spoken of for middling in September. Sakel is at rather over 15d. per lb. Manila hemp is worth £40 to £42 for J. grade and New Zealand £43 spot. We still have no quotations for sisal. T.N. Orange shellac is at 390s. to 400s., and A.C. Garnet 300s., with future quotations lower. Palm kernels are worth more, like copra, and now quoted at £20 or a little over, against £16 15s. last month and £36 10s. a year ago. Copper moves around £73, and tin £178.

Coming to finance, the following is a comparison of the principal points in the returns of the Bank of England at the present time and the corresponding week last year:—

May 14th.	1921	1920
Bank Bullion ...	£128,363,247	£112,518,503
Reserve of Notes ...	16,221,590	19,129,310
Private Securities ...	78,903,266	80,444,463
Notes in Circulation ...	128,768,640	111,312,935
Rate of Discount ...	6½ per cent.	7 per cent.
Price of 2½% Consols ...	47	48½
Price of Bar Silver ...	34½d.	58½d.

The London Cocoa Market.

BY THE EDITOR.

HAVE we, like America, left the worst behind? As these notes are being written there are signs that this is so—if we do not go back again to the old 48s. for fine Grenadas. These are already at 52s., whilst fair fermented Accras, which were at 37s., are now

(May 9th) at 41s. Two or three more rises like this and we shall all be smiling again—even if it is to Germany that we owe the spurt.

I started to sum up the various parcels reported sold to the Continent and generally considered to be for Hamburg, although of course no one can guarantee any of the current gossip. I left 50,000 bags well behind, and even then I knew of substantial parcels of which particulars were not available. Lagos has been selling freely, especially in comparison to that centre's total output. It is a pity one cannot ascertain the quality, and above all the condition of the parcels dealt in. All one knows for certain is that some of the cocoa may have been all right at one time, but has deteriorated as the months went by, so that 20s. and even 17s. 6d. was accepted for some lots, whilst 25s. was top price. The values (28s. to 30s.) above this were, I reckon, for cocoa that was sound, as, in spite of the rise in fair fermented, 28s. to 30s. is still spoken of for f.a.q. But until actual sales are registered I only half trust what I hear; before I close up no doubt I will have got more definite news.

I hope the New York *International Confectioner* is well known to planters either through their being direct subscribers or from seeing it at their clubs, &c. It always contains much that is useful in these trying times, as, for instance, in their April issue the truly international remarks, based on the *Economist's* (of London), review for the year of the cocoa market. This was quoted in our March number, p. 43. Our American contemporary gave to their article the heading of "The African-Bahia Avalanche of Cocoa." In this the relative quality of the powder and chocolate made by each country is discussed. We believe that at the coming Conference Mr. Whympers will continue this discussion in his paper, which will be of common interest to planter, manufacturer and consumer. He may strive to show that the falling away in the demand for fine cocoas is due to the public. We claim it is due to the makers not having educated the public to appreciate fine chocolate. "No," Mr. Whympers, we feel, will reply, "to talk of educating the public taste is merely to repeat the proverb of leading the horse to the water." This is where we differ. The public does not know of the fine chocolate. No one tells them of it. They are fed until they are "fed up" with common grades, with the result that the river of fine chocolate, running quietly on the other side, has already become a stream and will dry up altogether. Then, maybe, the public will know for the first time that such a stream did exist, because maps and models, perchance a sample or two, will be placed in the leading museums, and there the public will worship—the dead. We prefer the living, and always have done so. Why, therefore, cannot Governments of those centres producing these very fine cocoas combine with the leading manufacturers to make cocoa powder and chocolate from such choice growths and exhibit them whenever possible, so that they can both be seen and tasted? That is leading the horse to drink if you like. After that, if the public still prefer Accras or San Thomé, Bahia or San Domingo, no one can help it, but I feel sure that those who can afford to pay the price will

buy the choice makes and thus benefit the exchequers of Ecuador, Colombia, and even Mexico and other centres producing the beans.

Talking of Lagos, I have just received the *Government Gazette* from there, and can give the following figures to show the shipments of cocoa from that port (compared with the other leading exports) for 1919 and 1920. It will be seen that, as with other centres (though not the Gold Coast) the export has dropped off during 1920. The Gold Coast kept up for January-December, 1920, against 1919, but as I show later on, has also fallen away considerably (and it is well that it has done so), especially during the six months October-March, 1920-21, as compared with 1919-20. During December Lagos exported 578 tons of cocoa, Calabar 58, and Nigeria generally 642 tons. For the twelve months the exports were:—

Nigerian exports—	Lagos only		Nigeria (including Lagos)	
	1920 Tons	1919 Tons	1920 Tons	1919 Tons
Cocoa ...	16,715	25,386	17,154	25,711
Palm oil ...	13,444	21,199	84,811	100,966
Palm kernels ...	80,872	89,870	207,465	216,913
Ground nuts ...	31,053	24,332	45,409	39,335
Palm-kernal oil	2,435	998	3,493	3,536

Coming now to its sister Colony, the Gold Coast, the exports from there during the six months work out as under, showing a substantial falling off. One never can tell what will happen in these days, but unless something very unforeseen occurs, it does not look as if the Gold Coast will reach its average output of 122,000 tons for the last three years.

Accra Shipments—

1919	Tons	1920	Tons
October ...	15,509	October ...	4,358
November ...	13,349	November ...	8,389
December ...	17,885	December ...	14,081
1921			
January ...	16,513	January ...	12,142
February ...	12,795	February ...	18,645
March ...	21,044	March ...	12,983
Total ...	97,095	Total ...	70,598

Here is a drop of about 27 per cent.; if the next six months run on these lines only about 35,000 tons will leave Accra, against 47,500 last year (April-September), making 105,600 tons only for the twelve months October-September, against 161,600 in 1919-20. These months are not the Accra "year," strictly speaking, but they will be quite useful from a comparative point of view to give a true idea of how Accra has acted and may act with its cocoa exports during the coming half-year. These six months will be somewhat exciting for those with cocoa to sell, who will, therefore, be anxious to see smaller rather than larger receipts from competing centres. I have not had any news from Bahia lately, but when you look round generally, most, if not all, of the chief producing centres seem trying (probably involuntarily) to keep their outputs within reasonable bounds.

En passant, having the figures of the Belgian Congo, they might just as well be included, but one wonders why 1920 and 1914 show such marked reductions. There have been no reports of pests over there as from elsewhere.

I apologise for not quoting the source of my information; but I tore out the page without noting that it carried no name at the top.

Congo Exports in Tons (1,000 kilos)—

Tons	Tons	Tons	Tons
1902 ... 14.4	1908 ... 627.6	1914 ... 294.3	
1903 ... 75.8	1909 ... 743.8	1915 ... 672	
1904 ... 223.1	1910 ... 890	1916 ... 814.2	
1905 ... 239.9	1911 ... 768	1917 ... 527.6	
1906 ... 350.8	1912 ... 766	1918 ... 874.9	
1907 ... 486.8	1913 ... 967.8	1919 ... 920.5	
	1920 ... 379 tons.		

The Guayaquil receipts for the two and a half months to mid-March show 156,000 quintals this year against 168,813 in 1920. Here again there is a falling off. The shipments from Trinidad remain low, with practically nothing worth talking about (16,000 bags only out of 105,250) coming to Europe. Here are the figures for the half-year, October-March:—

Trinidad Exports—	To Europe Bags	To U.S.A. Bags	Total Bags
1920-21 ...	16,087	89,166	= 105,253
1919-20 ...	81,975	97,778	= 179,753
1918-19 ...	104,531	9,903	= 114,434
1917-18 ...	14,956	110,261	= 125,217

Stocks continue to drop in London and at Havre, whatever they may do elsewhere. Bordeaux also is not overdone, as on April 30th she had 113,900 bags on hand against the same quantity two years ago and 103,000 last year.

During April Havre received 19,000 bags and delivered 40,500, thereby reducing her stock from 311,705 bags to 290,198 as under. Here are the figures:—

Havre, April 30th.	Stock Bags 1921	New York \$3.95½ Paris Fcs. 51.50	Stock Bags 1920	New York \$3.84 Paris Fcs. 64.0
		Value Fcs.		Value Fcs.
Pará ...	7,317	125 to 135	3,162	410 to 430
Bahia ...	40,852	100 ,, 130	14,929	365 ,, 395
Venezuela ...	26,791	148 ,, 270	18,311	400 ,, 500
Trinidads ...	33,274	142 ,, 145	36,868	410 ,, 420
Grenada & O.W.I.	10	105 ,, 135	4	385 ,, 395
San Thomé ...	31,582	92 ,, 125	7,761	350 ,, 390
San Domingo ...	38,961	87 ,, 98	4	340 ,, 360
Haiti ...	32,088	75 ,, 103	14,114	325 ,, 360
Accras ...	45,138	94 ,, 98	20,535	340 ,, 348
Guayaquils ...	11,362	155 ,, 180	17,874	440 ,, 460
Others ...	22,823	—	13,781	—
Totals ...	290,198 bags		147,343 bags	

In London, Trinidads still continue only to dribble in. We get far more Grenadas, so that we now have 28,605 bags on hand, in spite of good deliveries, against less than 18,000 in the middle of February. Also, it is more than probable that what we hold to-day includes quite a large proportion that has passed to manufacturers' hands, which was not the case early in the year. Ceylon's output is well behind (by March 22nd she had only shipped 11,760 cwt., against 20,230 last year, and the Philippines still take a good proportion, viz., 3,062 cwt., against 5,321 to the U.K.), and so it is rather surprising that we have the stock shown. It does not seem as if there is much for sale of a good bold character. Such cocoa has already passed to second hands.

Coming now to prices, these stood on May 7th at 54s. to 62s. for middling fine Grenadas, against 41s. for fair fermented Accras, showing better values all round. Since then further sales took place, including

bold Ceylon at 80s., good red Trinidads at 54s. to 60s., fine 62s., and some fair Jamaicas at 50s., whilst fair fermented Accras moved to 43s. Cocoa butter had also gone to 1s. 9d. from 1s. 8d., and is now 1s. 10d.

LONDON STOCK, May 16th:—	1921 Bags	1920 Bags	1919 Bags	1913 Pre-war
Trinidads ...	22,352	23,780	16,015	7,756
Grenadas ...	28,402	26,169	7,743	7,880
Other W.I. ...	9,481	11,784	3,468	3,166
British African ...	12,741	55,616	40,440	9,807
Portuguese African ...	1,274	9,204	4,609	7,194
Cameroons ...	1,378	1,378	476	5,310
Ceylon and Java ...	22,237	18,444	11,113	24,444
Guayaquil ...	64,356	31,375	23,387	11,606
Bahia and Brazil ...	935	132	986	457
Other foreign ...	29,105	20,621	2,905	7,521
Totals ...	192,261	198,503	111,142	85,141

The Board of Trade returns are published for April and show among other things that the U.K. stock stood higher on April 30th (61,450 tons) than it was on March 31st (58,500 tons). During April only we took 3,591 tons into Home Consumption against 3,818 tons last year. Although this month there has been a good demand for export, April showed a serious drop off again (1,630 tons against 3,166 tons in 1920). Here is the table for the four months:—

BOARD OF TRADE RETURNS FOR THE U.K.—January-April.

Raw Cocoa only	Landed Tons	Del'd. H.C. Tons	Export Tons	Stock Dec. 31st. Tons
1913 ...	1,518	9,466	2,796	11,850
1919 ...	50,126	22,166	487	50,950
1920 ...	45,095	19,266	13,763	51,700
1921 ...	31,672	14,638	5,822	61,450
Decr. 13,423		Decr. 4,628	Decr. 7,941	Incr. 9,750

Summing up after the Whitsun holidays, it seems that the demand for export qualities continues, and that this is especially benefiting Accras, which stand to-day (May 18th) at 45s. for fair fermented against 37s., the lowest point touched. Trinidads at 60s. to 63s. and fine Grenadas at 53s. are both five shillings to the good; how the commoner grades are faring it is not easy to discover. The fate of Guayaquils and Venezuelan seems to require our sympathy, except perhaps picked lots here and there. One hears tales of forced sales of Venezuelan at prices between those now being paid for fine Trinidads and Grenadas which make your "mouth water," if it is quality and not quantity you are out for. I am sorry I have had no news this month from Bahia, but I believe the crop over there will be large and very late. Meanwhile they have little or no stock in Bahia, so no one is worried over the market at the moment.

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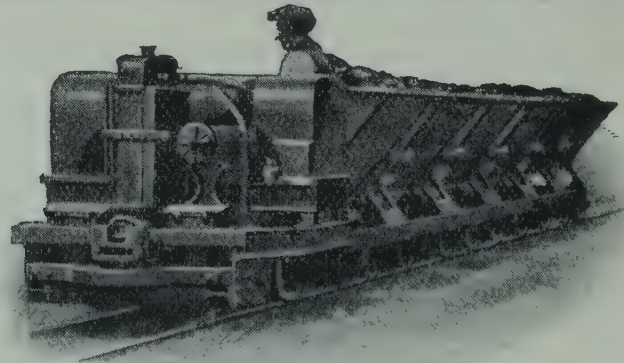
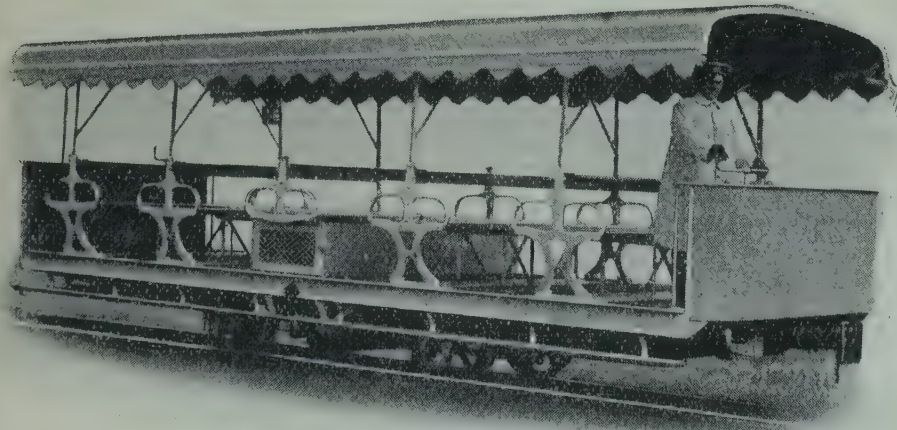
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Tropical Life:

A Monthly Journal devoted to the Interests of those living, trading, holding property, or otherwise interested in Tropical and Sub-Tropical Countries.

VOL. XVII.—No. 6.]

JUNE, 1921.

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The Fifth International Rubber and Tropical Products Exhibition.

THIS really wonderful collection of products from the tropical zone has come and gone. We discuss it at some length in our leading article on p. 89, but the detailed account of the exhibition, and especially of the machinery, &c., shown must wait for our July and August issues. Our Editor was so closely confined to the Conference Room that he had to postpone his report on the Exhibition downstairs, but a detailed account will appear in the next two issues.

Dwarf Coconuts under Cultivation.

As promised last month, we have included Mr. Will P. Handover's letter on the above subject in this number, as can be seen by turning over this page. We commend a careful study of what he has to tell us, especially on the part of those who have studied and are interested in what we have had to say on the subject in the second edition of Messrs. Munro and Brown's "Practical Guide to Coconut Planting."

Our approaching Change of Address.

REFERRING back to what we said in our May issue on the above (painful) subject, we have now further to report that it has been definitely arranged that we shall leave our present address on August 13th. Will our friends please note this and arrange for all letters despatched to arrive after that date to be addressed to 5, Great Tower Street, E.C.3? Of course, the publishing and head office of TROPICAL LIFE remains at 83-91, Great Titchfield Street, as before.

THE *Log*, that most interesting and, at times, almost fantastic organ of the Circumnavigators' Club of Burlington, N.J., U.S.A. (whose President, J. H. Birch, Jr., will soon be figuring in *T.L.* as "Our Friend"), reproduces our notes and photograph of Circumnoeldeerr (in plain English, Mr. Noel Deerr) from last December's issue. Placed among such surroundings, as a photograph of Mathew Henson, the hardy negro who accompanied Peary when he discovered the North Pole, a ballet of six Eskimo girls posing in their skins, i.e., their outdoor seal and reindeer skins, on "this occasion only," and a most attractively illustrated account of a trip through Japan, the romance of tropical development and of the men doing their work, could not wish for a more appropriate background.



PHOTO.— $7\frac{1}{2}$ -YEARS-OLD TREE LEFT, 5 YEAR-OLD-TREES RIGHT, IN BEARING SINCE THEIR THIRD YEAR

Vegetable Oil Notes.

MR. WILL P. HANDOVER, OF SUNGEI NIPAH, WRITES ON THE PRODUCTIVITY OF THE DWARF COCONUT.

THE paragraph in your January issue (p. 10), headed "Why Dwarf Coconuts fall off in their Yield," raises a number of issues, which, as the "man on the spot," I should be glad of an opportunity to put before those workers in coconuts, both scientific and practical, who are interested in this variety.

Let me first correct the impression that Sungei Nipah estate has been well cared for. It has been my great regret that, on account of the war, it has *not* been so, and it must be sufficient for me to say that various areas have been put out of cultivation from time to time. Secondly, I must point out that the fall in the second year's crop on which your query is specifically based was not due to any defective root action, but chiefly to the ravages of the "coconut spike-moth" damaging the pollen and thereby preventing the young ovules, already formed in the spike, from becoming fertilized more especially in one particular field.

It seems to me rather a misapprehension of Mr. Sampson's theories, if you have understood him correctly, to suggest that the coconut (dwarf or otherwise) should "bite off more than it can chew" in the way of natural seed production. I do not think Nature is usually so foolish.

The fact of "waves in reproductivity" is recognized to occur throughout both plant and animal life generally, and the lull that occurs is not generally attributed to lack of nourishment, this latter being presumed to continue in constant supply. On the other hand, the falling off, or rather, the lull in reproduction has been shown to coincide with an alteration of the cell sap, the concentration of which is known to influence the formation of egg nuclei. Perhaps one of the most interesting and practical demonstrations of sap influencing reproduction is that of grafting the top from a beet in its first year on to

a second year root, when the first-year-old crop immediately throws up its flowering spike a year previous to what it would have done normally.

Root pruning, ringing, artificial feeding, & employed to ensure fruit production by cultivation generally, doubtless are means by which sap concentration is brought about, while zoologists know well enough how desiccation, artificial feeding, addition of salts, &c., encourage the formation of reproductive cells. The questions of nutrition, physiology and bio-chemistry are too deep to be discussed further here, and it is for experts like Mr. Sampson to work out these facts and the field worker to collaborate them with his practical knowledge and to wrest from Nature of her hidden best.

THE REDUCED OUTPUT—IS IT A FACT?

It must be realized that this fall in crop not brought to notice was from all sorts and conditions of trees, some just beginning their third year of cropping, others in their second, and some (supplies) in their fruiting season, whilst the total included nutmegs grown from various fields with different classes of soils from clay to peat. The seasons contrasted by varying climatic conditions; in fact, the figures could hardly be considered to show *anything* of the behaviour of the individual tree. From information that have been able to gather, it appears that with proper treatment there is no final exhaustion of these palms for they are to be found twenty and thirty years old still bearing profusely, whilst the big palm is known to bear even when over 100 years old, and ends its record by some violent catastrophe rather than that of senile decay.

The variation in the crop on individual trees has, however, been interestingly shown at Sungei Nipah in connection with the selection of trees as seed bearers. The heavy yielders were specially marked early in 1919, and many of these have gradually gone off in yield, whilst their neighbours, which were below average and not marked for seed-gathering, are now to be seen as some of the heaviest yielders, clear

demonstrating the rise and fall of the reproductivity of the individuals whilst growing under similar conditions (e.g., as to climate, soil, water supply, pests, &c.).

It is unfortunate for statistical purposes that at Sungei Nipah there is no large area with all the trees of a uniform age; supplies having been put in throughout the area from time to time, so that one cannot tell exactly what the trees are doing at any definite age. To finally dispel the theory that there is any falling off in the yield of the dwarf coconut, I give the annual crops since 1917, together with the corresponding area from which they were gathered. From this it can be seen that even with indifferent treatment this dwarf form not only produces in something like half the time that the large form does, but it also gives a *greater yield of copra per acre* even from the very beginning of its crop. The accompanying photograph shows a portion of the field which was attacked by spike-moth in 1918, and demonstrates far better than all my writing that dwarf coconuts do not look like falling off yet.

RETURNS FROM DWARF COCONUTS, SUNGEI NIPAH ESTATE,
PLANTED 1913.

Year	Acreage	Crop	Nuts per acre	Copra per acre
1917	180	102,615	570	1 picul
1918	200	573,901	2,870	5.7 "
1919	210	376,610	1,793	3.6 "
1920	250	737,292	2,949	5.9 "
1921	300	—	—	—

N.B.—1920 shows how abandoned areas coming into bearing bring down average.

1919 was inexplicably a bad coconut year generally throughout Malaya. See the Perak Kongsu report.

A VOTE OF THANKS TO MR. HANDOVER.

Every coconut man must agree that our best thanks are due to Mr. Handover for the foregoing, which must have taken a considerable amount of time and labour to draw up. The same can well be said of the original article which appeared, it will be remembered, in the *States Bulletin* just as we decided to publish a second edition of Messrs. Munro and Browne's "Practical Guide to Coconut Planting," so it was included, and thus has proved the means of "drawing" more information on dwarf coconuts from experts in six months than was ever gathered together before. We feel, therefore, Mr. Handover deserves our gratitude, especially when one of the "draws" is the following from Mr. H. C. Sampson, on the eve of his departure for Nyasaland to report on conditions, with special reference, we believe, to cotton, over there. He is already well on his way. We wish him bon voyage, good health, and a speedy return—to coconuts.

MR. SAMPSON ON THE FOREGOING.

"I am returning you Mr. Handover's letter. What he says in the sixth paragraph on variation seems to bear out the explanation that I have offered (see T.L. for January). It must be remembered that the coconut is a monocotyledon and has no tap root. It continues throughout its life to form fresh roots from the base of the bole, and therefore a young tree is not nearly so well equipped as regards its root system as a mature one. The coconut also has no rest

period. Each leaf nominally produces a fruit bunch in its axis; thus, if it is able to do so, it is setting and developing fruit all the time.

"The very fact that a tree produces a large number of nuts (fruit) means a very serious loss of plant-food constituents to the plant, especially in potash, nitrogen and phosphates. In the case of a young tree this loss cannot be replaced by the root system so rapidly as in the case of a mature tree. A tree coming into bearing for the first time will have a reserve of these plant-food constituents stored up in the tissues, and may therefore produce heavily, but if this reserve is used up, then, although it may show plenty of blossom, it will fail to set fruit in any quantity.

"The amount of blossom is no indication of the future crop; in fact, I have found that in a year of poor blossom the crop is often much heavier than in a year when blossom is plentiful. Only when the young tree has recovered from this loss of plant-food constituents, or, as Mr. Handover expressed it, when there is again a 'concentration of cell sap,' will the tree be able to set fruit in numbers again.

"The paragraph No. 7 shows that trees which are slower in developing fruit have surpassed trees which promised early to be heavy yielders. Is not this because they are older, and have therefore had time to develop more fully their root system. Mr. Handover seems to think that you have implied that his trees are played out. This is by no means likely; they are simply resting after the heavy strain of bearing large numbers of fruit for the first time. If he will watch those trees marked early as heavy yielders, he will, in all probability, find that they will again yield as heavily, if not more so, than those which at present are surpassing them in yields."

WILL THE USE OF MARGARINE DWINDLE?

It has long seemed to us that unless the margarine manufacturing trade as a whole joins hands and "pulls up its socks" in a decisive manner, it will cut a very poor show in the near future. We are not experts as to what goes on behind the scenes in this industry, so important to our subscribers abroad, but believe that, instead of being organized as one solid whole, there are two, if not three, rival associations which are jealous of rather than helpful to each other. Why is this? Why not make one united whole, anxious to teach the public why margarine at popular prices should be purchased more freely than ever instead of using up their energies in inter-trade jealousies which check progress at every turn? Already one important works has been closed, and others will follow unless a new policy is introduced to help all to make bigger sales instead of one clique trying to checkmate another, with the result that it becomes stale-mate all round and butter romps home, leaving margarine nowhere.

DO THE MARGARINE MAKERS CARE WHAT HAPPENS?

There are those who take—from the tropical producers' point of view—a pessimistic view of the situation. We are not surprised, but wonder if it is necessary. So certain are some producers of copra and vegetable oils that the English margarine industry is doomed owing to high costs and want of co-operation,

that they tell you it will seriously affect the demand for vegetable oils in the near future. Is this so? The present heads of the British margarine industry, so the idea seems to run, have done wonderfully well during the last six or seven years, so that now they are only waiting to get off with the spoils before the reaction sets in. What has the trade got to say to this? How does the demand for British-made margarine per week and per month compare at the end of this current half year with six, twelve and eighteen months past? Is there any truth in the rumour that the present returns of margarine "made in England" are incorrect, owing to the fact that tons and tons of the Dutch makes, produced at a low cost, thanks to cheap labour in Holland, come into this country to be "manufactured" (which is different to being made) in the United Kingdom, and then sold as British margarine? The tropical producer would like to know the truth on these points, as otherwise he will be misled into thinking that the European demand is larger than is really the case. Who can be relied on to give truthful answers to such queries? Will they be found at the Conference about to start whilst these notes are being written?

THE LONDON "OBSERVER" ON THE SUBJECT.

In the first edition of their issue of June 12th the above paper published a letter by our Editor on the British margarine trade, in which doubt is expressed as to whether this country and Empire which produces the bulk of the raw material for margarine and soap-making enjoys as much of the manufacturing side of the first industry as we should be having. It is the same with rubber, as Dr. Porritt and other authorities pointed out a good time ago. If other countries can manufacture margarine and rubber, tyres, &c., galore and sell them in the United Kingdom against our own makes, there must be something very wrong somewhere. We have no room to reproduce the *Observer's* letter this month, but shall hope to do so in our July number. Meanwhile, how comes it that we who tower above other countries as producers do so badly as manufacturers?

LONDON PRICES.

The market on the whole remains evenly steady, with a rise in values since the beginning of the month where changes have to be registered.

JUNE VALUES.

COPRA PER TON—SPOT.

										London				Hamburg and Rotterdam.									
										F.M.S.				Marsilles Rotterdam.									
										Ceylon				F.M.									
										F.M.S.				F.M.S.									
		£		s.		d.		£		s.		d.		£		s.		£		s.		d.	
June	16	...	28	0	0	to	28	7	6	30	5	27	5	28	5	0	*						
„	15	...	28	0	0	„	28	7	6	30	5	27	5	28	5	0	*						
„	11	...	28	0	0	„	—	—	—	30	0	27	10	28	0	0	*						
„	10	...	27	15	0	„	—	—	—	29	10	27	0	27	17	6	*						
„	4	...	28	5	0	„	—	—	—	29	15	27	5	28	5	0	*						

COCONUT OIL PER TON.

		Ceylon				Cochin			
		Spot		For shipment		Spot		For shipment	
June		£	s.	£	s.	£	s.	£	s.
	16	...	51 0	...	47 0	...	73 0	...	55 0
	15	...	51 0	...	47 0	...	73 0	...	55 0
	11	...	n./q. 0	...	47 0	...	70 0	...	52 0
	10	...	52 0	...	47 0	...	70 0	...	55 0
	4	...	49 0	...	47 0	...	70 0	...	55 0

OTHER OILS PER TON.

		Castor		Ground-nut		Palm kernel		Cotton seed	
		Firsts		Crude†		Crude		Crude	
		£		£		Hull spot		Egypt	
June	16	...	59	...	38	...	46	...	36
"	15	...	59	...	38	...	46	...	36
"	11	...	59	...	38	...	46	...	36
"	10	...	54	...	37	...	46	...	36
"	4	...	54	...	37	...	46	...	35

* Rotterdam only. † Hamburg not quoted. ‡ English crashed, naked.
N./q. = no quotation.

WERE we to be appointed publicity agent for the tropics, the first thing we should call for would be a list of the most imposing and also of the most typically artistic scenes of each centre; the less known they were to the general touring public the better. This done, we should give travelling commissions to artists who by their works already known—not necessarily in the Royal Academy only—had shown signs of doing full justice to the scenery in the tropics, and ask them to give us pictures for exhibition at the various great art centres of the world, a heap of cacao under the trees, coffee bushes in blossom, a negro digging for hidden treasures at night with a couple of candles shining on his ebony head to give light. These and hundreds of other views shown together must appeal to the public mind when depicted by artists able to seize the "soul of the tropics" and would do more to send men and money out there than a year's lecturing campaign. To idealize the business of the world is not to lower Art; it only raises its value in the eyes of the men and women who count.

Among the artists we should choose Miss Marguerite Frobisher would certainly be one. We have been hearing a good deal about her work at Bushey, and the exhibition of her garden views and animal studies at the Burlington Galleries, Leicester Square, certainly confirms the opinions we had already formed of her work. Her ability to transfer to canvas the colours that Nature lavishes on the flowers of our English gardens makes us feel sure that were Miss Frobisher to paint the lesser known scenes of the tropics, much more attention would be attracted to them than mere black and white (printing ink and paper) can ever do. When the boon comes in our trade in the tropics, perhaps the rubber and sugar kings or the Indian princes will give our idea of an international exhibition of tropical views—not to include any futurist or cubist work—a chance. We do not want cranks; we are suffering from an overdose of them at the moment. We want true depictees of Nature—like Miss Marguerite Frobisher and others.

In the second edition of his book on "The Banana" (15s. net), Mr. William Fawcett gives some details of that much-dreaded scourge to planters, the Panama banana disease. This addition should alone cause a rush for the book because, although it is gratifying to believe the trouble to be confined to a comparatively small area, no one can say what will happen, and so every planter of this popular fruit is naturally anxious to ascertain the nature of the disease, why it has done such tragic harm, where present, and what remedies, if any, can be successfully used against it.

Rubber and Cotton Notes.

THE POPULATION OF PARÁ.

ACCORDING to the census of September last, the population of Pará amounted to 202,010 inhabitants when the census was taken (in September) say, 123,224 in the city and 78,786 in the suburbs. Bragança has 36,083, say, 3,594 only in the city and 32,489 in the municipal district around. To-day, the census claims for Rio a population of 1,157,873 people against only 112,695 a hundred years ago. It has, therefore, increased just tenfold in the century. Last year—1920—coffee contributed 49.1 per cent. of the total exports from Brazil, being first on the list, whilst rubber came eighth with 3.5 per cent. of the whole. Coffee was miles ahead, but used to be followed closely by rubber; now, alas! hides and skins come second, with 6.5 per cent. of the total, followed by sugar, 5.7 per cent.; rice, 5.4 per cent.; cotton, 5.1 per cent.; frozen meats, 4.2 per cent.; cacao, 3.6 per cent.; and then rubber. How have the mighty fallen! All the same, we are told, although the position in Pará is not good, that down south it is much worse, judging by the number of failures in São Paulo and Rio. Reports of steamer looting have been received from Acre territory at a place called Redempção on the Acre River, about 1,250 miles above Manaus. Similar occurrences are not unlikely, as there seem no soldiers around. This is certain to check trading with such rubber centres. Many Portuguese are being repatriated at reduced rates, being reduced to poverty, or nearly so, owing to the crisis over rubber along the Amazon. One boat in March, the *Lima*, had 288 Portuguese, mostly, if not all, being repatriated. A single firm of manufacturers in America is stated to have 12,000 tons on hand, mostly Eastern plantation. This is considered such a menace to the health of the already broken-down market that bankers are arranging (March 17th) not to let the rubber be thrown on the market.

LONG-STAPLE COTTON AND ITS PRICE.

We see in the *Indian Planters' Gazette* that, with a view to coping with the serious situation in which small cotton cultivators are placed, the Council of Ministers at Cairo has decided to purchase their cotton on a basis of twenty-three dollars for Sakel-laridis and sixteen for Ashmori. It was also decided to permit the National Bank to make advances at 7 per cent. interest, which cannot be called in before next March, and to authorize the Agricultural Bank not to expropriate small fields in the event of the owners not paying loans.

"RUBBER PLANTING," BY MR. C. WARDE-JACKSON.
 "I have received many inquiries for copies of 'Rubber Planting' which has been compiled by the Incorporated Society of Planters, at Kuala Lumpur, which I represent," wrote Mr. Charles Watney the other day from Courtfield House, Courtfield Road, S. Kensington, S.W.7. "For the most part, however, I have not been able to satisfy them owing to a shortage of copies. Now that fairly ample supplies arrived recently, I shall be pleased to hear from anyone wishing to obtain one, though I may say that this is emphatically not a time for novices to contemplate going out to the Malay States for planting

purposes. The existing unemployment among planters is unfortunately still very acute." All the same, there are many anxious to utilize the present "off" season to study any reliable literature on the subject they can secure so as to be efficient when things start to move again. Such men will be only too glad to make use of Mr. Watney's offer to supply the above book.

A WARNING FROM MR. WATNEY.

Mr. Charles Watney also writes pointing out that in view of advertisements appearing in certain papers in regard to Colonial outfits for India and the tropics, he has been asked by the Society of Planters to state that many of the prices charged in these advertisements are far above what ought to be paid, and which can be paid locally for goods of the first quality.

To officers and civilians taking up appointments in the Malay States, at all events, Mr. Watney would like to say that they will find it to their advantage to exercise extreme caution in buying outfits in this country, since so many of the prices suggested here as being bargains are very far from being so. White and khaki drill suits and footwear for the estate can be obtained on arrival in Malaya. They should not be purchased at home. We found much the same thing years ago when we went to the West Indies. One lost money by buying outfits over here, so long as what you required was obtainable locally, as is the case with Malaya.

RUBBER AND TROPICAL MANURING.

Those of our readers who reside in or near the West Indies and require information concerning the manuring of their crops should apply in the first place, not to us, but to Mr. R. S. Cunliffe ("Our Friend" last August) for copies of the many books and pamphlets that he has as propaganda representative of the Chilean Nitrate Committee. More than one complete set has passed through our hands, so we can vouch for the very full information they contain in comparison to the space available. A note to Mr. Cunliffe at 68, South Quay, Port of Spain, Trinidad, will always bring the required information, no matter what the crop, and will bring it, too, free of any cost.

PRICES AND STOCKS.

Coming now to prices, according to Messrs. Lloyd, Matheson and Carritt, these compared as under on June 16th:—

Spot quotations—		1921 June 16th.	1921 9th.	1920 17th.
		s. d.	s. d.	s. d.
Smoked sheet (F.A.Q.)	...	0 7 $\frac{3}{4}$	0 7 $\frac{1}{4}$	2 0 $\frac{1}{4}$
Crêpe (standard quality)	...	0 8 $\frac{3}{4}$	0 8 $\frac{1}{4}$	2 0 $\frac{3}{4}$
Pará	...	0 11	0 11	2 1
Forward positions—		Smoked Sheet		Crepe
		s. d.	s. d.	s. d.
1921, June	...	0 7 $\frac{3}{4}$	0 8 $\frac{3}{4}$	0 9 $\frac{1}{4}$
" July	...	0 8	0 9	0 9 $\frac{1}{2}$
" July—September	...	0 8 $\frac{1}{2}$	0 9 $\frac{1}{2}$	0 9 $\frac{3}{4}$
" October—December	...	0 8 $\frac{3}{4}$	0 9 $\frac{3}{4}$	0 9 $\frac{3}{4}$
Stocks—		Tons		Tons
Plantation, } ..	June 11th, 1921, 69,707	...	June 12th, 1920, 22,957	
London				
Pará, Liver- } ..	1st, ..	730	1st, ..	1,000
pool				
Total		70,437		23,957

Cotton Cultivation and the Cotton Stainer in Peru.

ANY student of Sir George Watts' monumental work on "Cotton" will realize what an important part Peru and its cotton has played, a true Adam to Brazil's Eve, as the father and mother of all that is best in the modern cotton-producing world. Without their assistance in the first place, we claim unhesitatingly that we should have none of the long-staple cottons of to-day, neither sea-island, sakel, nor the American-Egyptian. The more we dive into the history of raw cotton, the more certain do we feel that Peru is the Adam of such cottons. Maybe some of the children have wandered afield, but without the father there would have been no children to wander and finally to roost where we now go to find them.

This being so, the following notes from the pen of Mr. C. L. Royle, the ex-Indian sugar expert now in Peru (see "Our Friend" for December, 1920), are of interest, especially to those who, like ourselves, are anxious to see rubber-producing countries—Brazil and Peru—develop their cotton-growing area, and thus be able to weave the fabrics for the motor tyres in the factories that we are told will spring up in Brazil if not in Peru. Writing in mid-March, Mr. Royle reported as follows:—

NOTES ON THE "COTTON STAINER" (*DYSDEROUS SATURELLUS*).

"We were trying cotton on one of our estates, although we are not much interested in the crop on the whole. We have not had therefore any opportunity to try any of the ideas suggested, but perhaps others may be glad to do so."

Just over a year ago a portion of our estate was planted in cotton which, in a short time, was badly infected or rather infested with the "red bug," so much so that the crop practically became a total loss. This pest seems to have done a lot of damage in Peru, as only two years ago it caused the entire loss of the crop expected from 30,000 acres. As it seems to have been in the country for many years, the total loss must be enormous. I daresay other countries have a similar tale to tell.

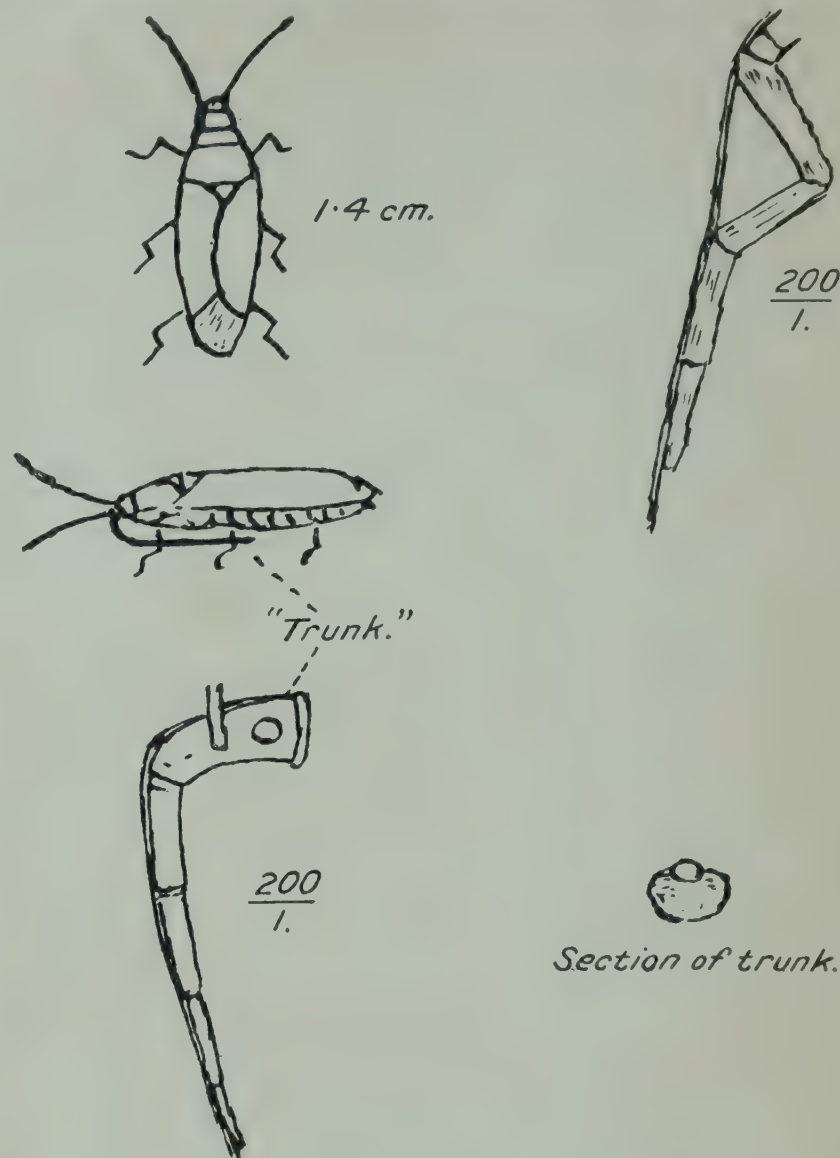
I made a short study of the pest at the time, and on the principle that every little helps, I send along the result on the chance that it may be deemed of interest to some of your readers.

This insect proved to be quite common throughout the estate where it was encountered feeding on several kinds of weeds and especially on the wild cotton trees which existed here and there.

The female is a little larger than the male and brighter in colouring. The under part of the bodies differ in the marking, some being red and white, whilst others are black and white; the under part of the abdomen is yellow with black markings as a rule, whilst others are of a plain uniform brown.

These markings have nothing to do with sex, as both male and female carry the same colours and no selection is shown in pairing.

The head of these bugs is fixed to the thorax in a noticeable manner which gives them that sphinx-like appearance which is typical of the "beast."



The Cotton Stainer in Peru (*Dysderous saturellus*) from rough sketches by Mr. Royle.

The trunk consists of two parts: one, the larger, has four joints; whilst the other, which lies in a groove on the top, has no joint and is slightly longer; this trunk is of very fine bore (see sketch No. 1). These two trunks, whilst generally used together, seem capable of being used separately, the duty of the large one seems to be to guide and strengthen the small one, which is the one that does all the mischief; they may be seen feeling around for a soft place and, having found the desired spot, the incision is made and the fine trunk inserted, which goes much further than the big one as the joints bend to enable this to be done (see sketch No. 2).

Drops of water were placed on a glass plate and they soon came round to drink, generally five to a drop, which they sucked up in a minute or two; with larger patches of water many more came round and did not seem to mind wet feet. This fact seems to me to offer a ready and practical way to cope with them, viz., the use of poisoned water to do the needful.

One female under observation laid forty-seven eggs, another eighty-seven, and all came out in seven and a half days. The eggs are whitish and nearly round, laid clean, that is, no gum nor anything to stick them to anything, therefore the bulk laid must fall to the ground; another mean advantage may be taken here and the eggs destroyed by spraying, flooding or ploughing in.

These insects are great cannibals, unfortunately; in

captivity out of eighty-seven young hatched, after twenty-one days only four remained alive. In the field also multitudes were to be found dead and dry, showing the instinct to eat one another to be natural. They were given food but still seemed to prefer eating one another. The mode of attack being for several to attack one.

In these few notes I need not discuss the development of the young, as I hardly touched this point. I can say, however, that the nymph stage seemed about twenty-four days, the wings showing up quite suddenly.

I killed one and his friends soon came along and saved the trouble of interment. Only dried skin remained.

In the field the young frequented the dead leaves and rubbish on the ground and were not found to such a great extent on the bushes except where cover was afforded. In the older cotton there were plenty of adults but not a great number of nymphs, whereas in the small plants with the white cotton showing there were nymphs of all stages and also plenty of adults. I was unable to find eggs although the soil was examined with a lens. The night habits of these insects might also be worth studying with perhaps economic advantage.

The cause of the so-called staining seems to be that the plant, robbed of its juice by a process which may be likened to a mosquito bite, becomes infected with organisms which cause decomposition of the cellulose.

In captivity some of the adults died, and in holding a post mortem I extracted a very small insect which may have been the cause of death, but this would have entailed further study for which I had not the time. Their presence may perhaps offer another means of attacking them to the benefit of the would-be cotton producer.

DON JAIME DE BOURBON, Duke of Madrid, descended from Henry IV, Louis XIV, and Philippe V, has been touring in Colombia, drawn hence by the many advantages of that Republic for agricultural industries, cattle-farming, &c., since, placed on the shores of two oceans, its produce, without going through the Canal, can be sent east to the United States or Europe, and west to Australasia, India, and the Far East with ease and directness. The distinguished visitor prophesies a great future for Colombia with Europe.

"Although," he argues in the paper *Colombia* of Paris, "coffee at present furnishes the chief and almost the only agricultural export, Colombia should be furnishing Europe with cacao—and such cacao—sugar, maize, &c. The coffee crop in 1919 amounted to 1,600,000 bags, but last year a total of 2,000,000 bags was exported, and yet France and Spain barely know of it. With bananas, Don Jaime claims the 10,000 hectares (about 25,000 acres) planted produced 100,000 tons of bananas. At an average weight of half-cwt. each, for easy calculation, this would give about 4,000,000 bunches of fruit as the last crop. This, of course, is in the Santa Marta area.

THE current number of the *Bulletin of the Imperial Institute* contains a comprehensive and valuable article

on the utilization of bamboo for paper-making. Bamboo has come much to the front in this connection during the last year or two, and it seems likely that in the near future the manufacture of paper from this material will be undertaken on a large scale in several countries. A British firm have been granted a concession for cutting bamboo in the Government forests in Trinidad and have also established a bamboo plantation there of 1,000 acres. Leases have been granted or applied for, for working bamboo forests in Burma, Madras, and other parts of India. In Indo-China two factories, equipped on up-to-date lines, are actually manufacturing paper chiefly from bamboo. Paper made entirely from bamboo pulp is of high-class quality. On the whole it is too good for the manufacture of ordinary news-print and is more suitable for the better grades of printing paper.

The article gives an account of the general characters and distribution of bamboos and a detailed statement as to their occurrence and utilization in various countries. The technical side of the subject is fully dealt with, particulars being given of the various methods which have been employed for the conversion of bamboo into paper-pulp. We hope our readers will carefully study what the Imperial Institute has to tell us, and then refer to our article on the same subject which appeared in last month's (May) issue, p. 70.

Coconut men should try and secure a copy of *Bulletin* No. 35 of the Philippine Department of Agriculture, Manila. Compiled by our old friend, Mr. P. J. Wester, it is entitled "The Coconut Palm: its Culture and Uses," and runs into over seventy pages, besides 24 pages of plates and nine figures in the text. Alongside Dean Copeland's work, this brochure will be most valuable to all of us. Unfortunately, no price is given, so non-Philippine men cannot offer to buy it.

OUR best thanks are due to Sir Owen Philipps, as Chairman of the West African Section of the London Chamber of Commerce, for the stand he made at a meeting on March 18th, to have the Press admitted to their meetings, i.e., *West Africa*, the *African World*, and, as Mr. Organ, of Messrs. Cadbury, Ltd., was good enough to suggest, *Tropical Life* as well. Everyone was agreeable, and why the myth had grown up that there should be no means of the sections securing publicity—that publicity which is the life blood of all forward movement—at these meetings no one seems able to say. Now all that is to be different. Of course, when occasion demands, the Press will keep mum, as we have always been although fully aware of all the decisions taken and the reasons leading up to them. There are those who think that there is no need to attend these meetings of the Chamber of Commerce, but we can assure such men that they are an education in themselves, so that, especially with no Press present, really useful data has been withheld from those who could and should have been aware of what is moving. This is why our best thanks are due to Sir Owen for his proposal, and also to our future hosts, the Chamber of Commerce, for so kindly agreeing to the suggestion.



Tropical Life "Friend."—No. 192.

H. GREVILLE MONTGOMERY, J.P.

Organizing Manager of the Rubber and Tropical Exhibition.

If you multiply 16 (years) by 12 you get 192 as above. This number completes our sixteenth year, and as we have had a "Friend" every month, beginning with the late Sir Alfred Jones and then Professor Wyndham Dunstan of the Imperial Institute, it is easy to see how we arrive at No. 192 as above.

As with the first issue, this number has much to tell about an exhibition. In both cases Professor Dunstan was a great asset. In June, 1905, we discussed the exhibition of raw cotton arranged by the then freshly organized British Cotton-Growing Association, which was arranged and held at the Imperial Institute. It proved a great help at the time to drive home to a sleepy British Public the capabilities of this Empire which is theirs, and what it would do if given a chance with cotton or other crops.

Ever since then we have steadily preached the gospel of Empire development. Even in 1905 the burden of taxation was considered intolerable, so what must it be to-day with the appalling budgets that we shall have to meet each half year?

In face of this "Our Friend" has done well to carry on the good work of those pre-war days. It was a daring project, beset with numerous difficulties that did not exist before, but judging by the useful and sentimental sides of the exhibition it has been a striking success. As stated elsewhere, the collection of exhibits brought together by the chief individual

courts, as well as by the stalls as a whole, taking the six or twelve leading ones as a specimen, have attracted even more attention and been more admired and appreciated than any similar number in 1914. Mr. Montgomery was a wise man when he—with his experience gained in organizing the Building Trades Exhibition, of which we gave a report last month—agreed to throw in his lot when running the Rubber and Tropical Exhibition with such a pioneer as Professor Dunstan, with Sir Owen Philipps—and that new asset to Empire development work in the shape of Miss Edith A. Browne.

Looking round the Hall whilst weighing up the many obstacles—each most serious—as the coal strike, the adverse exchanges, the heavy taxation, postal and fiscal and transport, one must pay tribute both to the countries exhibiting as well as to the unknown planters, Government officials and others who have been sufficiently enterprising and willing to send us their goods, raw and manufactured, in order to let us see what they can offer us to buy in exchange for what we have to sell. Whilst doing so, however, you cannot fail to realize the strain, as well as the physical and mental effort, that must have fallen to the lot of "Our Friend" and his colleagues before the public were able, as they have been during the past fortnight, to wander among and inspect the 1921 exhibition at the Agricultural Hall. We trust that they appreciated the work that has had to be done before they could do so.

Meanwhile the important question as to whether the valuable papers contributed to the Conference can be published on the basis of the present high level of costs remains to be decided. Everyone certainly hopes to see them in print with the discussion complete. As with ourselves, they feel the need of an up-to-date record on tropical crops to compare with 1914, and to show how we stand to-day on all points, production, pests, future prospects, &c., as against the year before the war. The papers contributed, whether on rubber, on vegetable-oils, cacao, forestry or other products certainly offer just the class of information required, and to let them go unpublished for lack of advance promises to take copies of the book would, we feel sure, be regretted later on. The wonderful report submitted by Professor Mello Geraldès on "Cacao Cultivation and Diseases" would fill a good-sized book of itself, besides carrying, we believe, so many photographs that their area would be only slightly less than the space needed for the printed matter. Senhor Cortesao's valuable paper covers eighty-two pages of typewritten "copy" without any illustrations, and Professor Geraldès' paper is at least twice as long.

Besides the above, there are fairly long and very useful papers by Mr. W. S. D. Tudhope, Director of Agriculture on the Gold Coast; Mr. R. O. Williams, on "Replacing Sickly Cacao Trees"; Mr. E. J. Organ and Mr. A. W. Knapp, of Messrs. Cadbury's Ltd.; Mr. V. D. Hatherley, of Messrs. Jas. Pascall, Ltd.; and last, but not least, Mr. Robert Whympers' paper. Among those who took a leading part in the discussions were Mr. Hull, Manager of the Ilheus Railway, Bahia; Mr. Patterson, of the Gold Coast; M. Edm. Leplae, of the Belgian Agricultural Dept.; a Surinam planter whose name has escaped us, and several other equally experienced authorities.

Business Notices.

1.—The address of TROPICAL LIFE is MESSRS. BALE, SONS AND DANIELSSON, Ltd., 83-91, Great Titchfield Street, London, W.

2.—All literary communications should be addressed to the Editor, and accompanied by the necessary stamps for their return if not accepted.

3.—All business communications and payments, either for subscriptions or advertisements, should be sent to the Publishers of TROPICAL LIFE. Cheques to be crossed The Union of London and Smiths Bank, Ltd.

4.—The Subscription, which is Twenty Shillings per annum, may commence at any time, and is payable in advance. Life Subscription, £10.

5.—The Advertisement Department is at 112, Fenchurch Street, E.C., where all inquiries respecting advertisements, charges, &c., should be addressed c/o the Manager of the Department. At the same time will advertisers kindly note that all copy and blocks for advertisements must be sent to 112, Fenchurch Street, E.C., before the thirteenth of each month, failing which, insertion of same in current month cannot be guaranteed.

6.—The Publishers reserve the right of refusing any advertisement, or the matter or "copy" sent in for any advertisement. They would also be glad if advertisers would refrain from using the "powerful" or extra heavy type that some adopt at times. Doing so renders the paper unsightly, and is unfair to the other advertisers as well as to ourselves. If all used such type, no one would benefit; to allow some to do so and not others, would be unfair.

7.—Advertisers are only entitled to three changes of matter in the year of twelve issues, unless (1) they send electros for insertion, or (2) are willing to pay for the cost of setting up the advertisement. Owing to present high cost of composition and printing work we cannot depart from this rule.

8.—Changes of address should be promptly notified.

9.—Non-receipt of copies of the Journal should be notified to the Publishers.

10.—The Journal will be issued on or about the twentieth of the month.

The Managing Director and Editor of "Tropical Life" will be pleased to consider the printing and publishing of useful technical works on Tropical Agriculture, Medicine, or other subjects dealing with the development of our Colonies and the Tropics generally, as well as similar books dealing with Russia, Japan and the East, whether the books are to be published in English or other languages.

Tropical Life.

JUNE, 1921.

The Rubber and Tropical Exhibition.

AN IMPORTANT MILESTONE ALONG THE ROAD TO POST-WAR RECONSTRUCTION.

WE are glad to have seen this exhibition and to know that it has been held and proved a success, from an educational point of view and as a sign-post standing up alone in the land of muddle and waste, to point the way to prosperity via knowledge, economic methods and steady work. Up to now we have had no such sign-post to guide us on our way to progress, although it has been badly needed like the Eddystone lighthouse, and the absence of such a beacon has caused many a firm to be wrecked since 1918, when we cannot help feeling there was no need of their being so.

In this issue, as we cannot do justice to the various exhibits owing to our having been more tied up to the Conference than we expected, we have decided to postpone our reports on the machinery and appliances, as well as the raw materials, until July and August. This decision has been approved of by

many of our subscribers who have taken a leading part in the exhibition, and so have been, as we were in connection with the Conferences, tied to their work on most of the days. Of course we were all glad of this, as it showed what an amount of information there was to be passed from one to another, both downstairs at the stalls and upstairs in the Conference Room.

Those present at Dr. Unwin's paper on "Timber and the Utilization of Forest Products" must have been particularly impressed with this idea. The question of labour and transport, which at present dominate and control the output of timber from all forests because of the great weight of their trees, the hopeless tangle of the undergrowth, as a rule, and the scarcity of efficient labour and transport facilities, seemed from what one heard to be of lesser importance than the need of cultivating suitable and remunerative markets before a start is made on the forests themselves.

By this we do not mean that many timber schemes have yet to be checked because they have not the means of transport and the labour necessary, but that, at any rate, with tropical forests, if you can but fix your markets first so as to include all the valuable products at hand as you penetrate through, then probably you could afford to adopt methods to overcome the other difficulties that you are up against.

Comparing the wealth of a forest in Brazil, Africa, or elsewhere to one of those huge Universal Stores in London, Chicago, New York, Paris, &c., the chairman claimed that you can no more pretend to extract but one kind of timber (mahogany, cedar, &c.) or one class of produce (as rubber, latex, oil-seeds, &c.) to pay than these stores can expect to prove successful on a single line among the hundreds of articles that they have to sell. If the public do not flow in to buy all classes of goods, the biggest stores would soon close down and the very small shop appear in its place. In big centres we must have big shops, and in the same way, when a big clearance sale of a permanent character, as with a forest, has to be placed on the world's markets, you must employ a number of suitable men trained to each class of produce to find a market before incurring expense. The grasses for fodder or for paper making; the small wood for charcoal; oil-seeds for soap or margarine, and then the canes and certain wood for furniture making all want to find buyers. Even the orchids can be remembered, and so last of all you come to the trees themselves; the temperate zone is quite unaware of the wealth of building and useful timber (as contrasted with the merely ornamental woods) that the tropics contain, and this is where this exhibition was needed.

In this case we will only discuss timber, but all that we are about to state applies equally to rubber, tea, cacao, cotton, vegetable oils, and so on. They all want more buyers to-day, and yet each knows that to-morrow (if the estates do not starve in the meanwhile on account of the world's reduced spending capacity) there will be more of these crops needed than the estates can supply for a time, and the forest woods are no exception to the rule. Already they are badly needed, but the cost is too high. This is why one is forced, after taking stock of the entire ex-

hibition, tropical products as well as rubber, to ask one dominant question.

Since undoubtedly the tropics have become, with one department or another, the universal providers of the world in so many leading lines, and would be even more so could outputs be increased and costs lowered, cannot it be arranged to have an international committee (not to sell but for propaganda work) first to take stock of what the forests, the seas and the cultivated areas of the tropics have to sell, and then to see what of these products and at what level of prices the world at large is a buyer? The Royal Agricultural Hall at Islington during June 3rd-17th has proved the need of such a committee. It has shown the samples, gathered together when everything was against success; transport, exchange, absence of cash, lack of supporters too absorbed in fighting Fate to help at the moment. In spite of all these we have had a most wonderful assortment of wares, raw and manufactured, and forest products, especially timbers, stand in the forefront. Here, therefore, are the goods to sell, not in single lines, as rubber from the Amazon, sugar from Cuba, cotton from Egypt, but as well-assorted stocks, needing all classes of buyers, and all the races of the world, rich and poor, to absorb what they have to offer as a whole, i.e., as it comes out of the forest. Who can facilitate, hasten and generally regulate and increase their outflow by telling the tropics where to go for the final consumers, if not a Committee as suggested?

Until this exhibition was held, no one could say what these stores in the tropics had to offer. Now we know (and there are others still to come), let us all help to bring buyers and sellers together once more, and in particular let us help the tropics to add to their baskets, and not put all their eggs in but one as has been done heretofore with far too many of them.

The Popular Side of the Exhibition.

WE acted as cicerone to a considerable number of our readers and their friends visiting the exhibition, and in all cases paid careful attention to what those without business interest in the exhibits thought of the various sections, and especially what attracted them, and what—often most important—articles they passed by unnoticed or merely glanced at.

The brass work in the Ceylon Court was a prime favourite, so were the Javanese bird (carved brass) lamps and the, apparently old, brass ornament at the picturesque stall of Messrs. J. A. Wattie and Co., Ltd. This firm is not known to us, but its large and attractive bay, i.e., rounded window, with the stand all painted white, much pleased the visitors. Then they came to the hats in the Philippine stalls. The men's hats, which were for sale at prices ranging from £50, £20, £18 and downward for each one, were admired as masterpieces of workmanship, but did not attract so much attention as the women's hats with their somewhat bizarre colourings, fringed edges, and the novelty of the material from which they were made. Much regret, however, was expressed by many visitors that these (women's) hats were all sold.

Adverse comments, the only ones we heard, were

made at the absence of any seating accommodation (except in the Cinema Hall), but this caused the hospitable nooks in the comfortable lounge courts of Messrs. Fry's and Cadbury's exhibits to be all the more welcome. The cosy corners and quaint green chairs of the latter firm (perhaps also the artistic and appropriate ornamentation of the stall generally), probably made it the favourite. At the same time, appreciative remarks were constantly being heard of the cups of cocoa distributed and their refreshing effects after the trudge round.

The heap of Brazil nuts in the Brazilian Court drew admiring crowds, so did their wonderful assortment of cigarettes, especially when samples were on occasion given out to the lady visitors, and from this we learnt a lesson. The public—some of them—may be fond of getting something for nothing, but they—all of them—are less keen to receive souvenirs of a trade exhibition, if that souvenir conveys the impression of being made especially to give away. If they are made to give away, then anyone can have them, but not so with those cigarettes and nuts—there was an art in their occasional distribution that was a lesson in itself.

The glass cases in the Colombian stall with gold quartz, emerald matrix, and the record (or nearly the record) nugget of platinum (weighing 20 oz.) had a full share of attention, so did the Goa (Indian) work in the Portuguese section. The Gold Coast Court took a long time to go through. The State umbrellas started it; the trappings on the horse caused many comments. "Were these extraordinary things ever new?" asked more than one visitor, holding up a handful of the State fal-lals. We could not say, but had to own that what we had seen were all rather shabby. The surf boat, and especially a very striking model of Accra beach, were great favourites, so was Liffia, the soldier sentinel, especially when he moved and turned out to be a real live man and not a carved model like the horse with the trappings, as some believed him to have been at first. With his sergeant's stripes he was very much alive when work had to be done. There is no doubt that it was the same, and will be again, when that work is with a rifle in his hand.

Presently we had drifted back to the Philippines again to admire the shell lamp shades. They certainly were pretty when lit up, and not at all expensive. Their chairs, too, were sat in by turn, especially the rockers. These were priced at £3 each, and could they have been picked up there and then and carried home, possibly a couple of dozen per day would have gone.

The wonderful series of models in the Malay stall to show the pests and diseases attacking the rubber trees attracted more attention than we should have imagined; we were of course pleased that it has been so, and since this is the case, future organizers might bear it in mind. Large models of vicious biting insects evidently appeal to the public; they are so pleased to think that if the bite is sharp now, it would be far worse were the insects the size of the models.

The scientist and the busy planter may think such details irrelevant and trifling, but we feel certain that nothing is a trifle if it is certain to catch the eye of the public, and by turning their attention to tropical development thus help in the work by inducing the public to vote sums to fight these pests.

This exhibition had, in every way, a much more varied collection of exhibits, especially manufactured ones other than rubber, than ever before. They proved a great attraction, so that it would not be unwise if they came again. Whether rocking chairs or brass trays, or the model in brass of a State barge (Messrs. Harrison and Crosfield's exhibit), what does it matter so long as your bait catches the fish? Through them the main product shown receives attention, and so when the Government here, anxious not to carry out economical reforms at the expense of the staffs on this side, wish to start cutting down the cost of overseas

the Colonial Office to cut down our present inadequate votes.

This is why we spent time we could not spare, going round to learn what will interest the public most quickly in the tropics and holds this interest the longest. Years ago we realized that this is seldom anything of prime importance. In this respect this year of grace 1921 is no different to 1914, 1911, or to any other exhibition year, and since it is so, we feel that this year's exhibition was held at the right time because of its varied and interesting nature and the grip it must have secured on the minds of the public.



agricultural stations, it is as well to catch the public eye, even if you need the help of a rocking chair or a packet of a new kind of cigarette to do so. We need more money, and much more money, to protect our magnificent tropical resources, whereas, at the moment, there is a tendency to cut down the funds available. If this policy of false economy is persisted in, nothing but trouble can result both to the producers abroad as well as to the consumers on this side. A look round at this exhibition must have forcibly driven home to many hundreds of visitors, including, we are glad to say, a large proportion of school children and students, what reduced outputs from the tropics would mean to our factories over here. Let us do all we can, therefore, to induce the taxpayers to realize the importance of the tropics and vote us more and more money to carry on the good work, and not allow

The West African Reception at the Rubber and Tropical Exhibition.

THIS reception was held on June 11th, immediately after Mr. A. W. Knapp had given his paper on "Cocoa Pests." Unfortunately he does not appear in the above group, nor do Mr. or Mrs. Organ, who were too much to the left for us to include them, as we should like to have done. Those in the front are (1) Mr. Orrantia (Colombia), (2) Mr. Ernest Holloway of Messrs. J. S. Fry and Sons, Ltd., (3) The Editor of TROPICAL LIFE, (4) and (5) Mrs. and Miss Hamel Smith, (6) Professor Dunstan of the Imperial Institute, (7) Mr. Greville Montgomery, (8) Miss Edith A. Browne, (9) Miss Rothschild, (11) Miss Fulton, (10 and (12) Mr. and Mrs. J. H. Batty, who received us. There were many prominent West Africans in the group.

The Storing of Rubber—and Deterioration.

STUDENTS of our book, "The Rubber Industry of the Amazon," will remember that on pp. 84 *et seq.* the question of blocking rubber is very fully gone into, and so are the *pros* and *cons* of other methods for preparing rubber on the estates to save loss by deterioration and theft should the rubber have to be stored, as is the case with so many thousands of tons at the present time. We believe that no portion of this book has received more careful consideration from plantation rubber men out East than this section. In the old days the rubber could not be produced fast enough, but even then we collected data carefully and systematically on the subject, so that now when, for a month or two, we have larger supplies than the world is able to consume, we often refer to what we then said in order to see how it compares with later views and experiments in connection with the storing of rubber.

We are reminded of this by the receipt of the following notes from the Press and Propaganda Committee of The London Growers' Association.

THE STORAGE OF PLANTATION RUBBER.

By DR. HENRY P. STEVENS,

Consulting Chemist to the Rubber Growers' Association.

Statements have recently appeared in the press to the effect that raw plantation rubber deteriorates rapidly when stored, and that consequently a great part of the present stocks will be of little use when ultimately required for manufacturing purposes.

It is not easy to discover how such misleading statements originated. Plantation rubber does not deteriorate rapidly; in fact, it is remarkably stable and little altered after long storage, provided certain elementary precautions be taken. The most important of these is protection from direct sunlight. It is probable that the fluctuations of temperature in Europe have little or no effect on rubber, and I doubt very much whether even tropical temperatures cause any appreciable deterioration.

My experience with plantation rubber goes back to the commencement of its production, and I have samples stored away in my laboratory which go back ten years and more. In no single instance have I ever found a sample of properly prepared plantation rubber show any marked signs of deterioration. At the most the surface becomes very slightly adhesive. This, however, is by no means generally the case, and many samples of rubber made eight or ten years ago cannot be distinguished from rubber made yesterday.

As is well known, rubber when set aside over a winter in England and exposed to ordinary winter temperatures becomes "frozen"; that is to say, it becomes stiff, hard and less translucent than when first prepared. All old samples of rubber in my laboratory are in this state, but if gently "thawed" by warming at temperatures under 100° C. they soon become flexible, elastic and translucent as originally. It may be that this peculiar property of rubber to "freeze" at moderately low temperatures may have given rise to the assumption that the rubber had

perished on keeping. It is possible also that some confusion has arisen between raw rubber and vulcanized rubber. Vulcanized rubber in contrast to raw rubber is not stable and deteriorates with age, however carefully the vulcanization be carried out and under all ordinary conditions of storage.

The above remarks apply to the ageing qualities of raw rubber as estimated by appearance and mere handling. When, however, these stored rubbers are put on to the masticating mill, mixed and vulcanized they behave in a normal manner. Any differences shown do not appear to be greater than are met with in the case of fresh samples recently imported. At one time or another ordinary vulcanizing tests have been made. Thus on one occasion a smoked sheet rubber was sent home to be tested, half being retained in the East for a twelvemonth. This second half was then sent home and tested against the first half. No difference in vulcanizing properties could be detected. This appears to show that storage in the East has no greater effect on the rubber than storage in this country. On another occasion various old samples of plantation rubber of a well-known mark were taken and vulcanized along side current samples of the same rubber. Small variations only were noted such as would be found with fresh consignments.

The subject of storing raw plantation rubber could be gone into in further detail, but sufficient has been said to indicate that deterioration need not take place when ordinary pale crêpe and smoked sheet rubber is stored for long periods under suitable conditions.

We have less data to go upon as regards the lower grades, but it is probable that these will keep satisfactorily if properly cleaned and dried. But rubber which contains an appreciable proportion of organic impurity and is exposed to conditions under which putrefaction sets in will rapidly deteriorate.

COLONEL W. H. FRANKLIN, C.B.E., D.S.O., Trade Commissioner in East Africa, has informed the Department of Overseas Trade that he frequently receives catalogues from firms in the U.K. in which no mention is made of prices or trade terms and discount; whereas, since practically all buying is done for that market by catalogue or samples, it is essential, if it is not possible to include prices in the catalogues, that a leaflet should be attached giving the prices (where possible "c.i.f. or duty paid at East African port) at the date of despatch with necessary reservations.

Trade, Politics and Finance.

THE situation over here and at all retailing centres of importance remains unchanged. Prices, retail, continue too high; they are as needlessly so, like the Government's (Imperial and local) rates of taxation in comparison to the spending capacity of the consuming public, and the consequence is that this is slowly but surely (whether intentionally or not we do not pretend to say) killing out the smaller men who used to do an important amount of trade in the

aggregate, but who cannot carry the present burden of taxation, direct or indirect, that is still being piled up on them.

The closing down or discouragement of these smaller firms reduces the competition for tropical products, and so we have had rubber down to 8d. per lb., instead of 2s. 8d., and cotton is hung up because who is going to buy cotton goods or any other goods at present prices? Margarine continues to be sold at popular prices, and copra, because of its all-round demand, remains steady, as shown elsewhere, at £30 per ton for Ceylon. This forcing of the smaller firms out of the market of course reduces the competition for the raw material, whilst leaving the big firms, who prospered at the expense of everyone else—producer, small makers and consumers—to ask more than they should do now and could do were there more competition. On the other hand, they can squeeze the market when buying their raw materials. No doubt it suits those who dictate such a policy, but were those who said that the war was fought to save small people from the tyranny of the big nations to practice what they preach now the war has been won, we cannot help feeling that the public would now be buying more freely because prices would be down to the level of their purses. The public would also buy more freely because, with fair retail prices, they would know that they were not being exploited for the benefit of the big firms. Our policy has always been that a thousand small traders were better than one big one. Everything being done to-day tends to reverse so desirable a state of affairs.

Coming to the market reports, we cannot expect any improvement so long as this unsatisfactory condition continues. The ratio of wages by the Government, and especially by the local authorities, has naturally caused the workers in the factories to become restless and expect to be paid more than the public can afford. As a result we are told that over a million people are out of work, and no one seems to believe anything reported by the heads of departments as to the salaries being paid. If unreasonably high rates and taxes are not being paid out in wages, where do all those hundreds of millions go? Someone is not speaking the truth, and so the planter and trader abroad must not be surprised if trade is held up. It will continue to be held up until confidence is restored in those who are bleeding us white, whether through taxation or unduly high retail prices. Again we would suggest that distributors of all manufactured goods be forced to lower their rates by being made to sell out in the same way that the holders of raw materials were made to do about a year ago.

As regards prices, crystallized West Indian sugar has been selling up to 55s., and both grocery muscovado and syrups up to 47s., whilst white Brazilian and Mozambique realized 56s. 6d. to 58s. With coffee, we understand that good to fine grades sell well, as with cacao, and also in common with that product the cheap grades are neglected. The total receipts to date amount to 13,044,000 bags, against 6,383,000 a year ago, 8,737,000 in 1917-18, and 14,590,000 bags in the 1916-17 crop. The Rio exchange is very low below 8½d. per m/r., which is also much against the Brazilian planter. Of other coffees, Mysore sold up to 72s. for fair greenish, 111s. 6d. for

boldish, 141s. to 142s. for fine, and up to 130s. for the best peaberry. Fair greenish Coorg, like Mysore, went up to 72s., good bold touched 99s., and peaberry went up to 90s. 6d. Good colory Nairobi realized 75s., fine another ten shillings on that, good mid. colory up to 100s., fine 106s., and peaberry up to 102s. Some fancy lots touched 121s. 6d., we understand, but have no details as to the description of this favoured parcel. Fair bold Uganda went at 64s. 6d. Middling to fine Costa Rica ranged from 112s. to 127s. 6d. for the best in each grade, and touched 144s. 6d. for peaberry. Good bold Salvador went at 97s. 6d. Greenish Colombian fetched 72s. to 73s., and good to fine 88s. to 95s. This coffee, judging from what we saw and tasted at the exhibition, deserves more attention than it is receiving.

Cotton remains below 9d., say, 8.15d. to-day for fully middling up to 8.82d. for December delivery. Sakel Egyptian stands around 14½d. for fair. Manila hemp is worth £37 10s. to £38, and New Zealand about the same or a shade more. There is still no news of sisal. With shellac, T.N. Orange is worth 385s., and A.C. Garnet about 300s. Palm kernels are steady at £19 10s., against £29 5s. a year ago. Copper is worth about £73, and tin £166 to £170.

Messrs. Rose, Downs and Thompson, the well-known oil-machinery engineer of Hull, write us that their London office has been removed from Mark Lane to 28, Victoria Street, Westminster, S.W.1. Mr. Roberts will still be in charge, so that clients can be sure of receiving the same quick and courteous attention as before. We regret to lose Mr. Roberts' presence, for he was nearly opposite our City address, and has proved very useful at times when technical difficulties presented themselves. His all-round knowledge of machinery in general, and oil-machinery in particular, has always appealed to us as being profound.

When we move next door to the Harrison-Crosfield Palace, we shall be nearer to the new premises of our old cacao friends, Vasmer's, Ltd., who are now to be found at Shanghai House, 8, Botolph Lane, E.C.3. Will cacao exporters please note this?

Coming to finance, the following is a comparison of the principal points in the returns of the Bank of England at the present time and the corresponding week last year:—

June 11th.	1921	1920
Bank Bullion	... £128,369,554	£116,706,689
Reserve of Notes	... 16,715,295	19,962,460
Private Securities	... 76,909,666	78,789,755
Notes in Circulation	... 128,280,135	114,367,090
Rate of Discount	... 6½ per cent.	7 per cent.
Price of 2½% Consols	... 45½	47
Price of Bar Silver	... 35½d.	51½d.

The London Cocoa Market.

BY THE EDITOR.

SENHOR ARMANDO CORTESAO (who was appointed (the first) Director of Agriculture at San Thomé in 1914, when we visited Kew together, as we reported and illustrated in *TROPICAL LIFE* for January, 1915, p. 13 of that year) in the paper that he contributed to the

Cocoa Section of the International Rubber and Tropical Congress, London, confirmed all that Mr. Tudhope had to say as Director of Agriculture in our own Gold Coast Colony in his paper on "Agricultural Development in the Gold Coast" with which the conference started.

"The success of the cocoa industry of the Gold Coast," concludes Mr. Tudhope, "is primarily responsible for a gratifying increase in the Colony's revenue which renders progressive works possible. Success, however, has been comparatively easy, and it has been, I fear, too rapid either for the good of the individual planter or the stability of the industry. I have dealt on other occasions with the dangerous features which are already apparent; for instance, *the wholesale destruction of natural forest areas* lowering the humidity and rendering conditions less suitable for cocoa. Unless legislation now contemplated can be enforced with popular consent to control this evil and also check the spread of disease, &c., it may well be that the cocoa industry—of which we have been so proud—may follow the once prosperous native rubber industry into oblivion."

Note well that the Director of Agriculture distinctly says "of which we *have been* so proud," thereby leaving on one's mind the impression that to-day they are far from satisfied with the prospects of this flourishing industry. Mr. Tudhope is well advised to compare the meteor-like rise of the Gold Coast cocoa industry with its flutter in rubber, and to warn the natives that what happened in the one case can happen again. Money was bled out of rubber even more easily than it is now being obtained from cacao—and that is far too easy—and that very ease made their rubber-boom pass with greater speed. For many years, reports Mr. Tudhope earlier in his paper, the Gold Coast was the largest rubber-producing Colony in the British Empire, with exports valued at between £300,000 and £500,000; now, he tells us, this has been lost in oblivion.

Coming back to Cortesao's paper, he regrets, naturally and rightly, the menace to the cocoa industry of San Thomé that the careless and wasteful deforestation in the past is now threatening. He writes in French, but freely translating he reports that the majority of the planters at the start, carried away in their enthusiasm and realizing the magnificent chances that the island offered for agricultural pursuits and for cocoa cultivation in particular, as shown by the richness of the forest growth, destroyed relentlessly the greater portion of those areas, and when warned not to do so, did not want to believe that a day would ever arrive when they would regret having ignored the advice and warnings of the experts who foresaw the disaster which now threatens their cocoa estates owing to this want of precaution in the past.

Now that dangers surround them the culprits are willing and anxious for advice, but there is reason to believe that their willingness has come too late. Senhor Cortesao's paper discusses the situation very fully under three heads. We regret that we cannot reproduce what he says; as it comes to eighty-two closely-typed foolscap pages, further explanation of our not doing so is unnecessary. Up to 1917 or 1918 their output, if not (on account of the war) their actual exports, showed a steady increase, but even then we warned both producers elsewhere, as well as

buyers over here, not to expect a continuance, for we felt sure that these two Portuguese islands, San Thomé and Príncipe, especially the former, were over "the top" with regard to their output and would put forth smaller crops. To-day that fact appears to be established.

There is no doubt, we are told on p. 6 of the MS., that the humidity of San Thomé has been considerably and seriously reduced since the cocoa estates were first established on a large scale, and it is this reduction in the moisture which has encouraged the spread of thrips now threatening the industry. The rains in theory should have driven them away, but successive wet seasons of late do not seem to have done so. If Nature cannot check the trouble, but rather seems to encourage it, what can mere man do to stem it? The fungus trouble, *Lasiodiplodia*, is also there, but thrips are the real danger.

The change in the climatic conditions having brought about a sustained reduction in the rainfall, this, coupled with the increasing impoverishment of the soil, owing to erosion, want of manure, also the lack of care in cultivation and the absence of adequate shade and protection from winds, have all encouraged the condition of things which helps the pest to spread. Unhealthy or ill-nourished trees, like people, cannot withstand or throw off disease like healthy and vigorous ones; it would appear as if, on account of the reasons stated, the trees in San Thomé have become debilitated, so that if they do not actually attract the thrips and other pests, they cannot throw them off if they do come, and when they come amidst such conditions they come to stay. The underlying reason at the back of all this might never, would never, have arisen had wise forestry laws existed and been vigorously enforced when the land was first cleared in San Thomé to plant up the estates.

Looking at the figures published, the year 1881 was exceptionally dry, but in spite of this the average rainfall for 1877-1881 amounted to 1007.6 mm., against 920.5 in 1887-1891, and 694.6 mm. only as the average for 1917-1920. Here indeed is a fall; no wonder San Thomé is in trouble, especially when the record for 1919 shows only 440.6 mm., and last year 586.2 mm. A metre is only 39.370 inches; nothing very great. In 1886 the rainfall seems to have been 1790 mm., in 1889 1135, but these are exceptions; to come down to about 20 inches seems too low to be credible. These figures are for the chief town, Sta. Anna we believe it is called. On the estates the rainfalls seem much heavier, thus on the roça "Monte Café," the average for ten years is put at 2595 mm., and on roça "S. Nicalau," it ranges from 1750 m.m. in 1919 to 3070 in 1917, with an average of 2388.

Our Gold Coast firms should study all this and try to secure copies of the paper if ever it is published. We should very much have liked to include them in our journal, but they cover far too much ground in the papers themselves and not to include the useful discussions which followed would be a great pity.

These remarks apply equally to Mr. E. J. Organ's paper on "The Gold Coast and its Cocoa," on Mr. A. W. Knapp's "Insect Pests, Moths, Beetles, &c., attacking Stored Cocoa," or Mr. V. D. Hatherley of Messrs. Pascall's on "The Future Prospects of Raw Cocoa as regards Chocolate Manufacture." Arising

out of either Mr. Knapp's or Mr. Organ's paper, the chairman referred to the model of the beach at Accra with its surf boats and piles of cocoa in the open waiting to be shipped, and asked why not utilize the apparently useless breakwater as a start and run an endless cable-way out to the ships, similar to the one at La Brea, in connection with the Pitch Lake out there in Trinidad, by which 1,000 tons of pitch can be dug from the lake, placed in skips, weighed and run out to sea (I believe the return journey is three miles from lake centre to steamer), and automatically emptied in the hold of the steamer within 12 hours. If it can be done with one cargo, why not another, as cocoa at Accra, or bananas at Port Antonio in Jamaica, Sta. Marta, Colombia, or elsewhere? The idea at least is worthy of consideration. One wonders what General Guggisberg as an engineer will think of it, providing of course that the sea bottom at Accra can carry the standards and not let the sea carry them away. If, however, the sand washes up and around the breakwater, thereby rendering it useless instead of useful, one wonders if it will not do so with the bases of the cable-way standards and thus help keep them in place.

Coming to market gossip, our stock in London remains unmoved, but I find that the idea as to an important proportion of this stock, as of the total United Kingdom stock, being useless for this market is becoming widely spread, and if this is correct, and I have long claimed it was so, it is a pity we cannot analyse the piles that are returned as being in stock around us. Could this be done, then we have still to deduct that which has been purchased by the manufacturers, especially the Big Three, so that any parcels left on hand to be picked up by other buyers tend to be in truth but veritable crumbs.

No one wonders at the tales recently told of the take-all-you've-got transactions of the big manufacturers among holders of Grenadas down Mincing Lane. First, it will be remembered, this was done at 48s. when things were very glum, then again, if I remember rightly, at 52s. or 53s., and now there are several quite wolf-like orders around, which, having cleared the board of fine Grenadas at 55s., are still around waiting for more at the same price. Sellers, on the other hand, would like to get 56s.; such a price has been registered, but not for clearance lines as those described. A West Indian boat recently arrived with a goodly supply of Grenadas, Trinidads, &c.; if the market is as bare as one is led to believe, the new arrivals should do well.

Whilst about it, I would like to call the attention of those interested in "The Fermentation of Cocoa," to Mr. A. W. Knapp's article on the subject in the Rubber Exhibition catalogue. I have abstracted mine and put it with other literature on the same subject. A paragraph in another article should please planters, for it tells us: "Whatever else the Great War may or may not have achieved, it has certainly taught the world to appreciate at their true value cocoa, chocolate and sugar as important food commodities, instead of regarding them as mere sweetmeats pleasing to the palate. To-day, far-seeing men are taking stock of the world's food supplies, noting the present areas planted, the crops produced and, in particular, noting what increased crops from existing areas can

be looked for when the world settles down. In these estimates cocoa holds an important place."

Which makes you ask: Are far-seeing men buying fine Grenadas to-day as hard as they can at 55s. because, having taken stock of the world's stocks and divided the many goats from the sheep, they feel that if they do not grab the sheep whilst they can, others will do so, and up will go prices later on when they come in again to buy? I see that in March (bottom of p. 46) I said that "in March last year the Gold Coast exported 21,044 tons, and another 15,555 in April, making the substantial total of 100,000 tons in seven months." This is a mistake; it ought to have been 112,600 tons as under. Also, please note that the April exports this year were 13,126 tons, and so still behind those of the preceding April.

Accra Shipments—				1919-20 Tons	1920-21 Tons
October-March...	...	...	...	97,095	70,598
April ...	...	...	...	15,555	13,126
Totals ...				112,650	83,724

If you want fuller details refer to the left-hand column in May, p. 79.

Meanwhile the London stocks on June 11th stood as follows:—

LONDON STOCK, June 11th:—				1921 Bags	1920 Bags	1919 Bags	1913 Pre-war
Trinidads ...	...	...	...	23,163	37,833	17,759	8,837
Grenadas ...	...	...	...	29,626	24,484	9,523	8,206
Other W.I. ...	...	...	...	8,618	11,907	2,417	3,491
British African ...	...	...	...	20,318	70,929	41,681	10,728
Portuguese African ...	...	...	...	1,164	7,604	4,480	5,073
Cameroons ...	...	...	...	1,378	1,378	476	4,177
Ceylon and Java ...	...	...	...	19,208	19,982	9,188	21,006
Guayaquil ...	...	...	...	63,482	43,482	19,323	12,392
Bahia and Brazil ...	...	...	...	843	132	986	296
Other foreign ...	...	...	...	25,593	27,021	3,288	7,135
Totals ...				193,393	244,752	109,121	81,341

Against this, Havre compares as under. During May 43,644 bags were received, including 33,637 Accras, against 30,903 delivered, so that the stock on April 30th of 290,198 bags went to 302,939 bags, as under:—

HAVRE, May 31st.		New York \$3'86 Paris Fcs. 47'17		New York \$3'88 Paris Fcs. 50'80	
Stock Bags 1921	Value Fcs.	Stock Bags 1920	Value Fcs.	Stock Bags 1920	Value Fcs.
Pará ...	6,062	113 to 123	4,613	335 to 380	
Bahia ...	36,038	98 ,, 128	28,662	290 ,, 340	
Venezuela ...	23,568	149 ,, 270	18,047	345 ,, 460	
Trinidads ...	29,949	135 ,, 140	36,947	335 ,, 375	
Grenada & O.W.I. ...	10	105 ,, 135	10	320 ,, 360	
San Thomé ...	28,759	92 ,, 125	62,526	280 ,, 350	
San Domingo ...	37,628	89 ,, 98	7,108	290 ,, 320	
Haiti ...	31,103	72 ,, 100	13,696	250 ,, 285	
Accras ...	71,580	95 ,, 98	19,664	270 ,, 290	
Guayaquils ...	11,544	145 ,, 165	12,947	410 ,, 440	
Others ...	26,698	—	18,352	—	
Totals ...		302,939 bags	222,572 bags		

The chief interest in the Board of Trade returns for May is the fact that the total stock in the United Kingdom (59,100 tons) is below last year's (59,350 tons). Our landings were surprisingly small, especially when it is realized that of British Africa alone we received 9,665 tons in May, 1920, or nearly twice as much as our receipts of all growths this year. Here are the figures:—

<i>Raw Cocoa only</i>	Landed Tons		Del'd. H.C. Tons		Export Tons	Stock, May 31st. Tons
May only, 1913	2,795	...	2,981	...	530	
" " 1919	12,370	...	4,863	...	548	
	—		—		—	
" " 1920	16,571	...	5,337	...	2,665	
" " 1921	5,103	...	4,043	...	2,015	

Decr. 11,468 Decr. 1,294 Decr. 650

Five months	Landed		Del'd H.C.		Exported	
Jan.-May, 1913	17,822	...	12,447	...	3,326	...
" " 1919	61,303	...	27,022	...	1,022	...
" " 1920	61,230	...	24,602	...	16,428	...
" " 1921	36,075	...	18,679	...	12,837	...

Decr. 25,155 Decr. 5,923 Decr. 3,591 Decr. 250

In face of the above it is no wonder that prices have risen; at any other time but now they would have gone higher still, for, as already stated—if not this month, in previous issues—a considerable portion must be put aside as undesirable even for the cheapest English class of trade, and at which even the Continent seems to fight shy, having taken the best of it by now. Then of the remainder, although visible in the returns, a good proportion of the whole, and the bulk of some grades, are in dealers' if not in manufacturers' hands, and, we feel, mostly in the latter's, so available supplies for fresh buyers must be relatively small.

The big buyers, it would seem, are still open to purchase good to fine West Indian on the basis of

55s. for the best marks, and as long as this continues the market is certain to remain bare of such cocoa except for dealers' offerings and odd parcels. The tendency is, if there is any movement at all in value (for good to fine), for it to be in an upward direction.

The last issue of the *Colombian Trade Review*, of which "Our Friend" for February (Mr. José Medina) is Director, published a special double number for the Exhibition just ended, which included a plea for the cultivation of choice cocoas in Latin-America, the money to be subscribed by the leading manufacturers throughout the chief producing centres. This is the fifth article to our knowledge, and of course there may be others, that has called upon the manufacturers and others to save the Criollo variety of beans from becoming extinct whilst it is yet possible to do so. Hybridization over a considerable area in Ceylon renders that island useless for such a purpose, and of course the output must always be insignificant, but in Mexico and Colombia and elsewhere in Central America there must be very large areas where such grades could be cultivated, and even, in some cases, their flavour strengthened and improved by judicious crossing; some of the very large Nicaraguan, for instance, might be induced to have more flavour, whilst in several areas in Mexico, Colombia, &c., we are told, which should be and could be planted, no chance of hybridization, so far as I know, exists.

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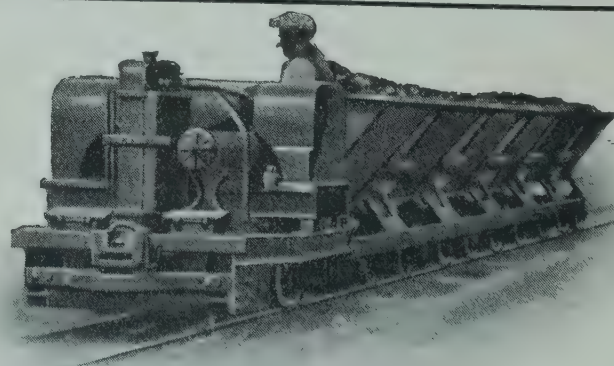
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Our Approaching Change of Address.

WE again beg to remind our readers that, on and after August 13th, our address will be 5, Great Tower Street, E.C.3. Of course, as stated before, the publishing and head office remains at 83-91, Great Titchfield Street, Oxford Street, W.1, as it has always been.

Rubber and Cotton Notes.

THE EXHIBITION NUMBER OF THE "RUBBER AGE."

IF you want a full report of the exhibits at the recent Rubber and Tropical Exhibition under a single cover, we would recommend you to order the July issue of the *Rubber Age* (43, Essex Street, Strand, W.C.). It is worth having. We can recommend their special articles, in addition to the current gossip of the exhibition and exhibits, under the heading of Machinery, Manufacturers, &c., intermingled with articles on the Peachy Process, the Hunter Drying System, to which we refer in our Vegetable Oil Notes.

Some of the papers read at the Conference are also included, especially that on Brazil Rubber by Dr. Hannibal Porto, second in command to Mr. H. H. de Vasconcellos, which is worth the most careful of studies. The doctor hit out in friendly spirit, but on the tender spots of his opponents, who will be wise to remember what he says long after the sting has been forgotten. Dr. Porto said what we have always claimed, viz., if the demand for rubber does not increase, if the consumption is not at least trebled, it seems inevitable that the rubber-producing industry must end in catastrophe. Brazil would not trouble, her rubber industry—like a dormouse—would go to sleep until the demand came round to awaken it, and their trees, costing nothing for their maintenance, would benefit by their sleep.

THE "STRAITS ECHO" ON OUR APRIL ISSUE.

Talking of this reminds us that a letter has just come to hand from Mr. C. Duncan, present acting-manager of our contemporary, the *Straits Echo*, which says nice things of our proposal that the rubber industry should go to sleep for twelve months and live on the 300,000 tons (and more) that we already have on hand, i.e., a stock more than sufficient to carry the world on for an entire year (see *T.L.* for April, p. 52, especially the paragraph: "If no rubber was shipped for a year"). "By this post," the letter told us, "we send you a copy of to-day's issue of the 'S.E.' containing a reference to the admirable

'Rubber's Salvation Scheme' in your April issue, which is of great interest here just now when so many miserable half-measures are being propounded. It is to be hoped that your reasoned proposals will bear fruit." A long article is devoted to the subject, which, as the *Echo* covers a considerable area, will be well read, and may—we trust—do some good.

LORD SELBORNE ON AGRICULTURAL LABOUR IN THE U.K.

"I have never known a country district, or anything definite about a country district, without meeting case after case of the farmer who began life as an agricultural labourer . . . The truth is that the agricultural labourer is not born in a cul-de-sac as some people contend, and never has been. There never has been a time, I suspect . . . when an agricultural labourer of marked character and ability could not rise to become a farmer." This is what the Earl of Selborne tells us, on p. 299, in the article he contributed to the *Journal* of the Ministry of Agriculture for July, describing "A Court Leet," established since time immemorial, but which now seems likely to pass out of existence with the coming of the Law of Property Bill for the United Kingdom now before Parliament in London.

If this is the case on this side, how much more true should it be of the right type of man who goes out to the tropics to make his way, since he has had a better education to start with, and as one cannot farm in England without capital, both men are on a level in that respect, so long as both have the real love of the work and the wish to get on and are men of "marked character and ability."

This being so, we shall look forward to the time when a friendly rivalry will exist between the land-workers in the Old Country and those of the newer areas as to who can show the greater progress year by year. Fortunes have been made by peasants, foreign-born and native, often enough in the West Indies, whilst on "Our Friend's" page the case of Ceylon is discussed. As with these, so with most places if the right men and women are there.

THE GOLD COAST AS A RUBBER PRODUCER.

If we are ever to become a rubber-producing country, claims Mr. Tudhope, speaking of the Gold Coast (see also Vegetable Oil Notes, pp. 99, 100), we must adopt plantation methods. This is already being encouraged under the guidance of the officials of the Department of Agriculture, but so far it must be admitted, however, that our efforts are only meeting with a modicum of success. Hevea rubber has been found to grow well in the colony, and it is altogether more suitable for plantation work than the local *funtumia*, consequently hevea is being utilized and *funtumia* ignored. Rubber men who have not yet read our book on "The African Rubber Industry," by Cuthbert Christy, should secure a copy, because at such a critical period in the history of the rubber industry as that which we are all now passing through, pre-war records by leading authorities should not be ignored.

HOOKWORM AND MALARIA RESEARCH.

Dr. Malcolm Watson—a name to conjure with in

modern tropical medicine, especially out East—writes on the above subject in the May issue of the *Planter* of Kuala Lumpur, which paper, if there is anyone left who is not aware of the fact, is the official journal of the Incorporated Society of Planters in Malaya. It would be as well if the planting world generally studied what Dr. Watson has to tell us, for the ankylostoma or hookworm is by no means confined to the tropics. On the contrary, although discovered over eighty years ago—in 1838—little attention was paid to this pest until a serious outbreak of sickness (due to ankylostoma) attacked the labourers employed in driving the St. Gothard's tunnel through the Alps, and thus focused attention on the worm. Now in ordinary language Dr. Malcolm Watson has given us in the *Planter* the gist of the report of the Commission appointed in 1915-17 by the Rockefeller Foundation to investigate the disease in Malaya, Fiji and Java. The report which resulted was somewhat late in making its appearance, but this was due to its being considered necessary to re-write and condense the voluminous data collected, and to arrange and present them to the public in a more convenient form than that of the unabridged report which is preserved intact in the library of the Rockefeller Foundation.

The number of worms necessary to produce fatal results undoubtedly varies, but so do opinions on the number. We feel that Sir Ronald Ross was near the mark when he said: "It is impossible to fix the exact number of parasites required to produce pathological reaction. Roger's estimate of 500 was probably much above the mark in many cases. Obviously, the numbers required to produce reaction vary inversely according to the strength of the host. Fifty ankylostoma might destroy a patient already debilitated by other disease or starvation." Against this, records show that out of five fatal cases of hookworm infection amongst Chinese, an average of no less than 877.4 worms were found on post-mortem examination. How interesting it would be to have the exact numbers in each case. Tamils arriving at Port Swettenham had an average of 128 worms.

"In the tropical world," sums up Dr. Watson, "this report will go far to still a widespread conflict of opinion. Doubtless it will lead the Foundation to revise its own views of the importance of the hookworm, modify its policy, and give still more of its funds to the control of other diseases. For that reason, as well as a contribution to our knowledge of tropical anæmia, this report must be regarded as one of the most important yet issued by the Rockefeller Foundation.

LABOUR AND RUBBER-SEED OIL.

We have heard it stated that if rubber seeds can be collected at a "reasonable" cost (an elastic term owing to the uncertain costs after the seeds have been collected), crushers would go to the East and instal plants to extract the oil from surplus rubber. The annual aggregate of such oil would already be substantial, and year by year it will increase. We have also heard that with rubber at 8d. per lb. in London labour will be leaving the estates, or if it does not leave it will be made to go—what a mistake! Push

aside your labour to-day (sugar, cotton, coffee, or rubber) because there is a slump, and where will you be next year when the reaction sets in, as it is bound to do, since natural forces would cease to exist if there were no reaction? With the first three, or other, crops mentioned it is difficult to say what you can do to induce your labour to "hang round" when there's a scarcity of money, but on rubber estates there is an inducement—in the surplus rubber seeds now rotting on the ground. Give them to your labour to pick up and take to town. And until crushing or solvent works, best of all both methods, are established, use an Anderson expeller, the old-time sausage machine of the soya-bean area in Manchuria. By it you will get oil to pay, and pay well, until confidence brings established works to treat the whole output.

At present, according to everyone, the seed is a dead waste "Rufus"—whom we will wager to be a Scotchman who knows rubber and the East like his own home—put in a timely letter on the subject in a recent issue of the *Financier* and others, many others have written on it. No one, however, has called attention to the fact that oils keep their price on a remunerative basis, whatever may happen to rubber. Surely, therefore, our suggestion is worth a trial. Give whole-hearted attention to getting a start made; it will keep your labour *in situ*, and you will want that labour later on. The possibilities of expansion in the Straits, Malaya and elsewhere are incalculable, but they will always be limited to the labour supplies available to do the work.* No sacrifice, therefore, to-day is too great if it will assure estates their labour for to-morrow. To give up your rubber-seed to your labour gangs because it will not pay you to collect them is no sacrifice in itself, but with it must go some of the brains and energy of the chiefs to start the industry and to induce labour to make the trial.

OUR TALE OF WOE OVER RUBBER.

Although Messrs. Lloyd, Matheson and Carritt write satisfactorily about a better inquiry, steady appreciation and the market closing firm, when you look lower down their excellent reports and find all this centres around a price below 8d. per lb., you feel that the professional journalist is being left behind in his ability to make a good story out of poor facts. A fact, however, that is not so poor concerns the decreased stock in London—940 tons in a fortnight ending July 7th, but even then there was—on July 2nd—69,200 tons on hand, against 22,852 tons a year ago. During the six months, January-June—London received 41,886 tons, against 23,962 delivered.

PRICES AND STOCKS.

Coming now to prices, the same firm shows these to have compared as under on July 15th:—

* "When the rubber position improves there will be a very marked shortage of labour and, in view of increased wages in India and possible restrictions in recruiting, the same facilities will not exist for increasing our Indian labour force."—Mr. W. Peel, Controller of Labour in the S.S. and F.M.S., when speaking as Chairman of the Indian Immigration Committee, on May 18, at Kuala Lumpur.

Spot quotations—

		1921 July 14th. s. d.		1921 7th. s. d.		1920 15th. s. d.
Smoked sheet (F.A.Q.)	...	0 8 ⁷ / ₈	...	0 7 ¹ / ₂	...	1 9 ¹ / ₂
Crêpe (standard quality)	...	0 9 ⁷ / ₈	...	0 8 ¹ / ₂	...	1 10 ³ / ₄
Parà	...	0 11	...	0 10 ³ / ₄	...	1 11

Forward positions—

		Smoked Sheet s. d.		Crepe s. d.
1921, July	...	0 8 ⁷ / ₈	...	0 9 ⁷ / ₈
" August	...	0 9	...	0 10
" July—September	...	0 9 ¹ / ₈	...	0 10
" October—December	...	0 9 ⁷ / ₈	...	0 10 ⁷ / ₈

Since then prices have advanced to over 10d. a pound.

Stocks—

Stocks—		Tons		Tons		
Plantation,	} ..	July 9th, 1921,	69,820	...	July 10th, 1920,	23,189
London						
Parà, Liver-	} ...	" 1st,	780	...	" 1st	1,000
pool						
		<hr/> Total 70,600			<hr/> Total 24,189	

Vegetable Oil Notes.

HOW MUCH PALM-OIL COULD WEST AFRICA PRODUCE IF FULLY DEVELOPED?

It cannot be said, Mr. Tudhope, Director of Agriculture in the Gold Coast, told us in the paper he contributed to the June Conference at the Royal Agricultural Hall, that the oil-palm products of the Gold Coast have ever been exploited beyond a mere fraction of what could be secured. Since cacao has been found so lucrative and a much less laborious crop, the majority of the natives have transferred their energies to that crop. The natives realize the intrinsic, as well as the potential, value of the palm, but, unless compelled through sheer necessity—which is improbable—it may be doubted if they will ever appreciably extend the production of palm products for export unless or until appliances or labour-saving methods for preparing the oil have been perfected and successfully brought to their notice. A scheme for the promotion of central factories on a co-operative basis among the native owners is now under consideration; which it is hoped will help to overcome the main obstacles which at present hinder a healthy increase in the production of palm products, of which many hundreds of thousands of pounds' worth are now known to go to waste annually, whilst the value of the exports stands much below this.

COCONUTS ON THE GOLD COAST.

Coconuts, Mr. Tudhope went on to say, although perhaps not indigenous to the Gold Coast, have obviously been growing there for very many years. As a commercial product, however, they have never been very seriously taken up by the natives, although some parts of the country are admirably suited for their cultivation. There is a small local trade in the fresh nuts, but the exports of copra have never exceeded a thousand tons. More interest has been awakened in this crop in recent years, and a vigorous policy to aid development is now being pursued. In addition to propaganda work, large communal plantations are being established by the Department of Agriculture at several centres.

SHEA-BUTTER ON THE GOLD COAST.

We are being told so often nowadays that we shall hear and see much more of Shea-butter from the Coast, as the industry is to be organized and developed so as to take its place in time alongside palm-oil products as an important export from West Africa. There certainly seems plenty of material to work on from what Mr. Tudhope had to tell us, and whilst working what is already easily accessible, to extend—as could be done with oil-palms—further afield, and so increase the output. Increased outputs within a given area tend to decrease costs to producers. Such a reason alone, therefore, should encourage those in charge of the land to be developed to see that the uttermost per acre or square mile is produced before going further afield to get no better produce, whilst the greater distance must add to the cost.

Another indigenous product, the Director of Agriculture tells us, to be found in huge quantities in the more interior parts of the country which offers prospects of trade, and yet hitherto which has been untouched or has been dealt in to a very small extent for local purposes only, is Shea-butter, derived from the seeds of *Butrospermum parkii*. Its development has not hitherto been possible, primarily because of the absence of transport to the sea coast. The contemplated extension of the Government railway into the Hinterland should render the development of this product possible, and already the Agricultural Department has the preliminary work necessary to achieve success well in hand.

GENERAL GUGGISBERG SAID TO FAVOUR THE SHEA TRADE.

Reports, for some little time past, have spoken of the firm belief of the present Governor of the Gold Coast in the great (near future) possibilities of working up a trade in Shea-butter, and thereby obtaining increased revenue for H.M. Exchequer on the Coast. All this is a move in the right direction, for such an industry further inland as the shea-butter trade seems to promise, will tend both to lower the taxation per head by extending the basis to collect it from, and also to ease transport costs on other goods by increasing the tonnage to be moved by rail—when the railway is built.

On this account the promised extension of the railway offers possibilities for the successful establishment and, later on, the extension of the shea-butter and other producing industries as ground-nuts, &c., in the interior. The phenomenal development of the ground-nut industry in Northern Nigeria following—as was the case—the extension of the railway in that country is a striking example of the benefits bestowed on a country and its people through having adequate transport facilities. Such facilities throughout the shea-butter area, where, we are told, huge quantities of *Butrospermum* seeds are to be found, will therefore do a double good, (a) it will bring about the establishment of the shea-butter industry, and (b) open up the development of the country generally.

THE WORLD AND ITS (INADEQUATE) COTTON SUPPLY.

The Overseas Editor of the London trade journal *Margarine* was showing us his notes for the coming issue of that journal. Claiming that the world is growing shorter and shorter of hard fats for the margarine, soap, and lard-compound trade, our fellow-journalist was asking whether coconut, cotton and linseed oils could by hydrogenation be turned into hard fats—hard enough, that is, for margarine and hard soap-making. If not, he is claiming, we must scour Brazil and elsewhere for nuts to give us hard oil-fats at reasonable costs. What interests us most in all this is the fact that so many are urging the United Kingdom, Brazil and elsewhere to grow cotton for all they are worth. We also want more flax and linen. If we get all the cotton and linen we are told that we must have, and as we, quoting Mr. McConnell, asked for in our March issue (p. 37 and p. 41), we shall also get much larger supplies of cotton and linseed oil. Can we utilize these to help eke out the lack of hard fats v. liquid oils? It seems unlikely, but possibly these more liquid oils could be used where other kinds that can be hardened are now employed, and so save them as raw material for industries needing hard oils and fats. Those interested in the matter should try and secure copies of the June and July issues of *Margarine* (46, Avenue Chambers, Vernon Place, Southampton Row, London, W.C.). The cost is not so great, about 20s. per Annum, including postage. For single copies we cannot give the price.

MR. TUDHOPE PAYS HOMAGE TO KEW.

Referring to Mr. Tudhope's paper on the Gold Coast, we would note here how he praises Kew for that unstinted will to help that we all know to exist. "The first step," he tells us, "usually taken by British Administration to further the development and study of agricultural products in tropical colonies is by the opening of a Botanic Station, and so successful has this method been, that all other colonizing powers have seen fit to adopt similar methods. The enormous assistance given in this matter by the successive Directors at Kew has been of inestimable value, and the foundation of many a prosperous industry in many parts of the world can be directly traced to their initial help or advice."

LONDON PRICES.

At the time of writing these notes (July 12th) the copra market stiffened to £32 for Ceylon, whilst prices generally have been ruling as under:—

JULY VALUES.				COPRA PER TON—SPOT.			
		London		Marseilles		Rotterdam	
		F.M.S.		F.M.		F.M.S.	
		£ s. d.		£ s.		£ s. d.	

COCONUT OIL PER TON.

			Ceylon			Cochin	
			Spot	For shipment		Spot	For shipment
			£ s.	£ s.		£ s.	£ s.
July	18	...	56 0	... 50 10	...	73 0	... 58 0
"	16	...	56 0	... 50 0	...	73 0	... 58 0
"	14	...	56 0	... 50 0	...	73 0	... 58 0
"	8	...	56 0	... 48 10	...	73 0	... 58 0
"	2	...	56 0	... 48 10	...	73 0	... 58 0

OTHER OILS PER TON.

			Castor		Ground-nut		Palm kernel		Cotton seed
			Firsts		Crude†		Crude		Crude Egypt
			£		£ s.		£ s.		£ s.
July	18	...	59	...	45 0	...	50 0	...	40 0
"	16	...	59	...	45 0	...	50 0	...	40 0
"	14	...	59	...	45 0	...	48 0	...	38 10
"	8	...	59	...	44 10	...	46 10	...	38 10
"	2	...	59	...	43 0	...	46 0	...	38 10

* Ceylon. † English crushed, naked.

The Cult of the Coconut.

COPRA AND COPRA MANUFACTURE.* PART III.

Continued from our February issue, p. 23.

THE Rubber Exhibition, and especially the Conference, has caused us to shelve this article for a time, but perhaps it is as well, for since Part II appeared we have seen what the Tyneside Engineering Co., Ltd., has had to show us as the last word (for the moment) in copra-drying appliances, and have discussed its price and principle with Mr. Elsworth, senior and junior. We must say that the number of coconut men who stopped to ask questions and went away satisfied surprised us, for we did not realize before how keen shippers of copra have become to secure a capacious and reliable dryer for their estates. Then there was the stand of Messrs. Francis Shaw and Co., Ltd., on which was shown the system placed on the market by Dr. Hunter (who was present) of the Hunter Dry Kiln Co. of America, to dry produce, &c., without the use of fans, blowers or any machinery than what was there, a set of trays upon trays on a carrier, which we should imagine could quite well be adapted for copra-drying against any system in the Philippines, if only because the carrier can be run in and out of the drying sheds so easily, whereas most of the systems place the copra on trays, &c., each of which has to be moved; with this system it comes and goes as a whole. At the end of these notes the Samoa Drying House, after Preuss's plan, is shown. We have reproduced it from the one in Mr. Wester's article. Compare this with plans of the two systems mentioned above.

Returning now to the Philippine dryers, and that of Mr. O. W. Barrett in particular, Mr. Wester goes on to tell us that:—

A modification of this dryer was later constructed by Pedro Benito in Magdalena, Laguna, in which the steam pipes instead of all being placed at the

bottom were installed at different heights between the trays, an obvious improvement in that it insured more equal distribution of the heat throughout. At the San Ramon Farm, Zamboanga, Mindanao, a steam dryer has also been installed where the meat is placed in large trays above a system of pipes. All these dryers produce copra of good quality, but much remains to be done before the apparatus is perfected so as to render better service commensurate with costs of construction and operation.

One of the most efficient and compact hot-air dryers in use in the Philippines to date is probably the McCord. This make of dryer, which has been patented and is now manufactured by a company in Manila, is made in units containing eight drying chambers or in double units of sixteen chambers, with four doors like a cupboard on opposite sides. Each chamber is 1.13 metres high, 51 centimetres wide and 59 centimetres deep, and contains fifteen shallow trays of perforated sheet-iron or wire-netting,* which are slid into the chamber on narrow sheet-iron flanges. The walls are made of sheet-iron with space under and between the drying chambers for the passage of the hot air, this space between the drying chambers being 75 millimetres. The inside walls of the drying chambers are provided with openings for the passage of the hot air from the bottom and the sides. The moisture-laden air is discharged through a large circular vent at the top. In operating the dryer, air is forced by the means of a blower into a chamber above the furnace made in concrete on the level of the floor to be heated; from there the hot air is then forced through the aforementioned air-passages and into the drying chambers containing the coconut meat, whence the moist air, as stated, passes out at the top. According to Mr. McCord, copra containing not more than 5 to 6 per cent. of moisture is turned out of this dryer after four hours of drying, the capacity of a double unit at one time being 365 kilos of copra. Under pre-war conditions the cost of construction of a double unit was Pesos 2,500, exclusive of concrete work, power machinery and blower. The McCord dryer is well worthy of investigation by anyone in the Philippines contemplating the installation of a copra dryer.

Another copra dryer that appears promising has been invented by Mr. J. L. Pierce, Manila, which will shortly be placed on the market. This is also a hot-air dryer. The meat is fed into it by means of an endless wide belt on which it is carried through the machine at a slow speed, and is passed out of the machine after four hours of drying.

A McCord dryer including three units or forty-eight drying chambers is now successfully in operation in San Pablo, Laguna. This dryer has a blower that forces 13,000 cubic feet of air per minute through the drying chambers and requires an engine of 12 h.-p.

The drying outfit includes a steam boiler for the generation of steam, and a wooden steam vat in which the nuts are steamed preparatory to drying, divided into six compartments. Each compartment is 2.10 metres long, 1.30 metres wide, and 1.25 metres deep, with a capacity of 2,000 nuts. The top is hinged so

* Reprinted to some extent from Mr. P. J. Wester's article in the *Philippine Agricultural Review*. For full acknowledgment see our February issue, p. 21. But since then Bulletin No. 35 of 1920 has come to hand, in which Mr. Wester has brought all his previous information up to date.

* Wire cloth, running in narrow parallel lines, would be much better.

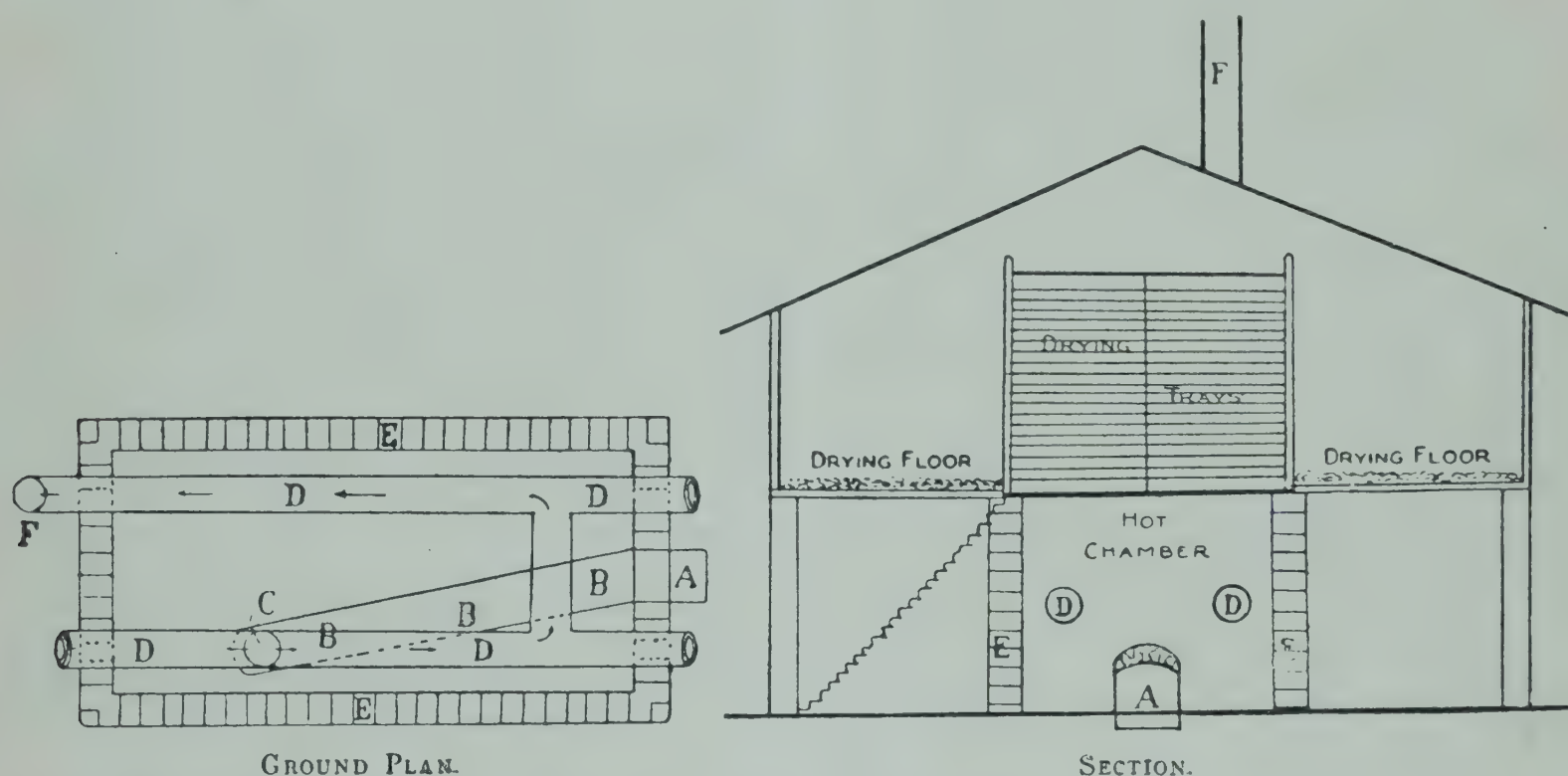
that it can be entirely opened to receive the nuts. The floor is inclined to one side of the compartment which is hinged downward, so that when the steaming of the nuts has been completed and the door opened the nuts automatically roll out upon a platform where they are halved.

The copra manufacture here proceeds as follows:—

After being husked, the nuts are thrown into the box and steamed about 10 to 15 minutes. The nuts are then halved, and the meat separated from the shell, which is easily done because of the steaming. The meat is then placed on the trays in the dryer and after a period of four hours, which is sufficient to expel the water in the meat, is taken out of the dryer, and the dried copra conveyed to the cutting machine through which it passes before being bagged ready for the market.

"The drying room proper is directly over the heating room and very little larger, and the floor between them is merely a grating. In operation the drying room is filled with trays of copra, each holding about three kilos. Different dryers vary in capacity from 200 to 394 trays. The local custom is said to be to remove the copra from the shell without any preliminary drying, which is laborious and inevitably involves breaking it into small pieces. Assuming a yield of 2 tons a year per hectare, a dryer then will take care of the yield of 150 hectares. How large an area can well be made tributary to one dryer depends, of course, on the means and cost of transporting the nuts as well as on other local conditions.

"In German New Guinea and the Bismarck Archipelago a dryer is built for each 100 hectares. Preuss states that one of them will dry 1,700 lb. of copra in



A Copra Drying House in Samoa (after Preuss). Ground plant (left) and cross section (right) of same, showing—
A. Furnace. B. Masonry flue. C. Connection of masonry and iron flues. D. Iron flue. E. Stone wall. F. Chimney.

Dr. E. B. Copeland, formerly Dean of the College of Agriculture, Los Baños, quotes in his well-known book "The Coconut" the following description of a type of copra-drying house used by the Deutsche Handel- und Plantagen-Gesellschaft in Samoa, which description was first published by Preuss in 1907:—

"The drying house, the outer walls of which are supported by wooden posts set in cement, is set over a smaller room of masonry, in which the air is heated. This hot room is, in one of the dryers described as typical, 5 metres long, 2·3 metres wide and 2·3 metres high. Set into the wall of the middle of one end is the fireplace. A flue of stone runs from the fireplace obliquely, well toward the outer end of the room. It is there connected by a vertical piece of tubing with a horizontal system of sheet-iron flues, consisting of two or three lengthwise sections (two in the figure) and the necessary crosswise connections. The iron flues are 30 centimetres in diameter, made locally from sheets. The ends project beyond the walls, and can be opened when the pipes need cleaning. The last flue ends in a chimney 12 metres high. The course of the smoke is indicated by arrows.

twenty-four hours or 300 tons a year. The temperature is kept near 50° C. When the copra is taken from the drying chamber it is spread over the floor of the building to cool and to dry a little more perfectly. Unless the drying is finished in this way the copra is said to mould; but with proper treatment the product is of excellent quality. One of these drying houses costs Pesos 3,000 to Pesos 3,500."

(To be continued.)

It gave us much pleasure to see Miss Lottie Venne—an old favourite of ours—again. As Lady Catherine Champion-Cheney, in Somerset Maugham's three-act comedy, "The Circle," we had heard that Miss Venne was as amusing as ever, so paid a visit to the Haymarket and found this was indeed so. She was well backed up by Mr. Holman Clark as her former husband of thirty years before the play started. Miss Fay Compton, the daughter-in-law of this wonderful couple, considerably added to the amusement of the evening in conjunction with Mr. Leon Quartermaine, Ernest Thesiger and Allan Aynesworth.

Review.

COCOA AND CHOCOLATE. THEIR CHEMISTRY AND MANUFACTURE. Second edition. By Robert Whympers, with 16 plates and 38 text figures. 552 pp. + 16 pp. bibliography and index. Weight 56 oz. Price 42s. net. J. and A. Churchill, 7, Great Marlborough Street, W.1.

This book deserves several pages devoted to its contents so as to give it that complete review which its wonderful survey of the many branches of the subject discussed really entitles it to. It will, therefore, be a very foolish planter who does not, the same as most planters and manufacturers, make a close study of this classic on cocoa and chocolate making, for it shows plainly and in the smallest possible space how and why the "cat jumps," so far as choice of the raw material is concerned. Such a book, therefore, gives planters at each centre of production some idea as to how they can, or why they cannot, hold their own against rival growths, and why, if they lose or gain in the ever-increasing struggle for existence, things tend to go in the direction that they will ultimately move.

Everyone interested in the manufacture of the bean of commerce into the cocoa and chocolate of the household will, of course, "jump" at such a book, for it carries conviction that the author is quite at home with his subject, and that every word is as necessary as it is carefully considered and not there to fill up space. For this same reason the producer should also study the road along which the manufactured side of the industry is travelling, because if he, the planter, mistakes the road, he may find that he is heading for a desert, whilst his rivals elsewhere are already established on an oasis and enjoying the trade, part of which, at least, might have been, and may yet with care, be his own.

"For the first time," Mr. Whympers tells us in the Preface to his first edition (we believe issued in 1912), "the chemical composition of cacao has been traced from the fresh beans through the various stages of manufacture, so that the changes which occur during fermentation, drying, roasting, &c., may be followed."

Now all this, even the roasting figures, is of prime importance to the producer, therefore it will only be a foolish backwoodsman who does not strive to secure a copy of the later and improved second edition now available. The changes throughout the world have been great since 1912; all this is clearly outlined and discussed in the Preface of the latest work. Radical changes have been introduced into the factory since 1914, Mr. Whympers tells us, but what of the quality of the product? One can well ask: What of the quality? It is far from satisfactory in our point of view. If we are correct and changes are to be made at all, considerable changes must take place in future in the growths purchased. Here again such a book will prove invaluable to the planter. The new régime may prefer *his* growth and "turn down" that of his rival; at present possibly it is all the other way round; but changes can come about, and the sooner they do so the better, both at producing centres and in the factories, if that change will improve the quality, first of the beans and then of the manufactured article.

The chapter on fermentation (on the estates, of course) is very complete. We expected it would be so, but not to the degree that we found was the case. May we be excused if we quote the following note on our own book on the subject, "The Fermentation of Cacao," about which Mr. Whympers writes on pp. 58-59 as follows: "The book includes not only much original research on cacao fermentation, but the considered judgment of men whose business in life has been the study of the cocoa industry. A great deal of information may be drawn from this work, and the chocolate manufacturer who studies his products cannot do better than obtain a copy of this admirable collection of essays and *read it*." It was Mr. Whympers who put *read* in italics. He also pays tribute to Mr. Knapp's subsequent work in connection with fermentation, published in this paper.

"The Coconut Palm," by Mr. P. J. Wester.

ON p. 87 of our June issue we called attention to the above in a small paragraph of about ten lines. Since then we have received a letter from one of our coconut friends, from which we take the following paragraph, as it states our own views very exactly:—

"If some of the publications on economic crops drawn up by the Departments of Agriculture within the Empire were issued as ordinary books on the various industries discussed, what a sale they would have. Why should not such a thing be done? It would certainly tend to maintain and even to further the standard of work being done, whilst the profits accruing from the books would, I am sure, be very welcome to finance small schemes to carry on experimental work when the usual Government grants tend to dry up. Mr. P. J. Wester's pamphlet on "The Coconut Palm; its Uses and Cultures," is such a book, although, of course, produced outside the Empire. This is known officially as *Bulletin* No. 35 of the Department of Agriculture of the Philippines. It contains 72 pages, xxiv plates, besides text figures, and a very full map at the end. If it is an up-to-date edition of former bulletins on the same subject, that only makes it more reliable. All coconut men would like a copy of such a book and be willing to pay the market price for it. I therefore beg to make the suggestion to our friends in the Philippines and to those in our own Departments of Agriculture at home and abroad, that in future they make a charge for their publications the same as if they were published by a private individual, and mark it plainly on the book. It is best to include postage in the price asked. This will not prevent their giving some away if they wish to do so."

THE newly proposed Rubber Producers' Corporation is an excellent idea, and, if adequately supported, should lend aid of great value, says the *Observer*, but gain of a more practical nature will accrue through rigid adherence to a genuine determination to curtail production. This is what we asked for in April, and which proposal the *Straits Echo* considers (see first page) worthy of attention.



"Tropical Life" Friend.—No. 193.

A. E. RAJAPAKSE.

Gate-Mudaliyar of Ceylon.

WITH at least thirty-four years' experience as an agriculturist, Mr. Rajapakse had a good deal to tell the boys of the Ceylon School of Agriculture at a break-up meeting last September. It seemed that there has always been a tendency—and it is more than that—for mistaken youths to imagine that they would attain to higher positions in the world as lawyers, doctors, merchants or merchants' clerks, in fact by doing anything but becoming an agriculturist. Mr. Rajapakse's views, like our own, lie in entirely the opposite direction, and so do, we feel sure, those of Lord Selborne, judging by his remarks, which we have much pleasure in reproducing on p. 98. To-day agriculture is a profession, the mother, as has so often been claimed, of commerce, and how anyone can imagine any calling to be more interesting (when you are properly trained to it) or honourable surpasseth our understanding. Here are "Our Friend's" views on agricultural prospects in Ceylon, taken from the speech he made as mentioned above: "Their's, as they were aware, was an agricultural country, and their forefathers were tillers of the ground, but now that higher education in connection with other professions was available, young men of the present day thought that the agricultural profession was below their dignity, and the best talents with capital in the island were, unfortunately, entering other professions to such an extent as to overcrowd them. Some were found in the law courts of the island as briefless lawyers living expensive and useless lives on the hard-earned wealth of their parents or on the fat dowries brought by their unfortunate wives. (Laughter and applause.) Instead

of becoming useful citizens they appeared, he was sorry to say, rather as parasites on the national wealth. Let them not for a moment think that agriculture as a profession did not pay. It paid more than these other professions at present crowded out. There were many who amassed wealth as agriculturists—one in particular—who, having done so, used much of it to help others, I refer to the late Mr. Charles Soysa. With such an example, why should others fail?"

These are Mr. Rajapakse's views on paper. Those who visited the Ceylon Court of the Rubber and Tropical Exhibition saw at a glance that if he talked well of agriculture, agriculture had paid him back well in return. To be prosaic, the coconut-fibre mats from "Our Friend's" estate were the envy of everyone. Had they not been so large—well, there is no saying what would have happened. One cannot help wondering where they are now.

"Our Friend's" exhibits of desiccated coconut drew quite crowds when we were around; it is a long time since such exhibits have been seen here. As a rule coconut products do not draw much attention, everyone has come to know them so well that they lack novelty, but in this case the exception proved the rule and no wonder, it was a carefully selected group of well-prepared coconut products which the most experienced planter could learn wrinkles from, and which caused the indifferent public to stand and wonder at.

Space in a journal is valuable in these days, so we will not give "Our Friend's" names and description in full. As Mudaliyar of the Governor's Gate he owns the highest native titular rank. Born in 1866, and educated at the Colombo School of Agriculture, Mr. Rajapakse has been engaged in scientific agriculture since 1887, during which period he has done as much, and probably more, than anyone to advance the coconut industry and agriculture generally in Ceylon along the best and most advanced lines from year to year. Such men, both by their example and precept, are invaluable in holding an industry when trade is flat and tending backwards and to push on forward when a boom is on, never slack or careless either when sales do not pay or when they pay so well that many take no trouble at all. As the proprietor and manager of the well-known trial grounds for manuring coconuts in the Negombo District, "Our Friend" has never stinted expense nor failed to let others benefit from his successes or failures. Then there is the dry-farming area in Ceylon in which is situated the Rajapakse Dry Cultivation (Coconut) Experimental Grounds, covering about 3,000 acres, which should be better known in the coconut world. We only know of them by name, but when it is remembered what an important part a plentiful supply of water in the subsoil plays in the output of a coconut estate, the lessons to be learned from anyone daring to run an estate in the dry-zone of Ceylon appeals to us as deserving the most careful and close attention.

A leading man in the island's agricultural associations and societies, Mr. Rajapakse has much to tell on rice, on plant pests, and all the other subjects which have made Ceylon one of the most deservedly prominent centres in the agricultural world and "Our Friend" one of the leading agriculturists in Ceylon. Long may he be spared to carry on the good work.

Business Notices.

1.—The address of TROPICAL LIFE is MESSRS. BALE, SONS AND DANIELSSON, Ltd., 83-91, Great Titchfield Street, London, W.

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3.—All business communications and payments, either for subscriptions or advertisements, should be sent to the Publishers of TROPICAL LIFE. Cheques to be crossed The Union of London and Smiths Bank, Ltd.

4.—The Subscription, which is Twenty Shillings per annum, may commence at any time, and is payable in advance. Life Subscription, £10.

5.—The Advertisement Department is at 112, Fenchurch Street, E.C., where all inquiries respecting advertisements, charges, &c., should be addressed c/o the Manager of the Department. At the same time will advertisers kindly note that all copy and blocks for advertisements must be sent to 112, Fenchurch Street, E.C., before the thirteenth of each month, failing which, insertion of same in current month cannot be guaranteed.

6.—The Publishers reserve the right of refusing any advertisement, or the matter or "copy" sent in for any advertisement. They would also be glad if advertisers would refrain from using the "powerful" or extra heavy type that some adopt at times. Doing so renders the paper unsightly, and is unfair to the other advertisers as well as to ourselves. If all used such type, no one would benefit; to allow some to do so and not others, would be unfair.

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8.—Changes of address should be promptly notified.

9.—Non-receipt of copies of the Journal should be notified to the Publishers.

10.—The Journal will be issued on or about the twentieth of the month.

The Managing Director and Editor of "Tropical Life" will be pleased to consider the printing and publishing of useful technical works on Tropical Agriculture, Medicine, or other subjects dealing with the development of our Colonies and the Tropics generally, as well as similar books dealing with Russia, Japan and the East, whether the books are to be published in English or other languages.

Tropical Life.

JULY, 1921.

The (1921) Rubber and Tropical Products Exhibition in London.

IS THERE A TENDENCY TO "HARD-CURE" EASTERN RUBBER?

BY THE EDITOR.

WANDERING through the raw rubber exhibits in the Malay and Ceylon courts, and after studying the exhibits on the private stands as those of Messrs. Harrison and Crosfields, Ltd., J. A. Wattie and Co., Ltd., Guthrie and Co., Ltd., Thos. Barlow and Bros. and others, I turned to the exhibit of Messrs. Davidson and Co., Ltd. (of Belfast), and watched their process for converting latex into rubber, and then moved into the main hall again to inspect the Peachey process. Following this, I returned to the Malay (or was it the Ceylon?) Court to see some Wickham Hard Cure, and then drifted into Brazil to look at their old-time *pelles*. After doing all this and more I left the building, wondering whether there is not more inclination

in these days than in 1914 for the East to follow the lines of Brazil in curing their rubber than was the case when the previous exhibition was held. I would claim that any unprejudiced business expert, having been made aware that rubber should be 2s. 8d. per lb. instead of 8d., would wonder why the East still sends a bone-dry rubber to market, whilst Brazil sends her's with 20 per cent. or so of water and gets 11d. per lb., instead of 8d. for fine Eastern plantation (June 16th) for doing so. If wet rubber sells at a higher price, why send dry? The makers may prefer it, but if they only prefer it at about a quarter of its proper value (and even then the price is at a low level), the producer cannot be blamed if he starts thinking of his own interests and leaving the manufacturers to their own whims and fancies, follows the cure which pays best.

Looking at the piles of Eastern rubber on show, I can report no change between 1921 and 1914 in the rubber already produced, but I am not so sure that there may not be a considerable change in Eastern rubber when the next rubber Exhibition is held in London, let us say in 1928. If there is, one or more of the new processes, which means to say the old Amazon system under new names, will have been adopted, and the rubber will come to market more on a parity with Brazilian hard cure than is the case to-day.

When the last exhibition closed its doors I wrote, in my report, that there was too much "punishment" of rubber in the making out East, and that this not only costs money but tends to weaken the resultant rubber; in a word, planters were spending money to spoil their rubber. During the past seven years I believe some reaction has set in against such a practice, and I agree with those who claim that having been busy on war work has not prevented firms like Messrs. Francis Shaw and Co., Ltd., David Bridge and Co., Bertrams, Ltd., Baker-Perkins, Ltd., from introducing important improvements in their machines to meet producers' current requirements. Whatever the planters ask for I am sure these firms will hasten to supply; the only query is, will others step in without being asked and make the planters realize what they need—an improvement on anything or everything that has gone before—and not wait to be asked to do so? There are straws blowing in the wind that makes one fancy such a thing could happen. One has still to learn what the veterans in the rubber machinery world have to show us, because they did not show machinery at the Hall. Messrs. Francis Shaw had the Hunter Dryer (for rubber, &c.), Messrs. Bridge and Bertram were non-exhibitors, and Messrs. Baker-Perkins showed no machines to do the preliminary stages of the work in an Eastern estate rubber factory, confining their energies rather to their popular washing and mastigating machines. Their "Universal" patent washer is of course well known by now in the rubber-producing world, having become as firmly established on the rubber plantations abroad as in the rubber factories over here. In its latest improved form special attention has been given to the easier dismantling of this machine for overhauling, whilst a strengthened construction has been introduced in order to reduce breakdowns to a minimum

and so prolong the life of the machine. Those who wish for particulars of this firm's latest appliances for rubber should write them, Messrs. Joseph Baker, Sons and Perkins, Ltd., at Kingsway House, Kingsway, W.C.2, London.

We noticed several machines made by Messrs. Francis Shaw Co. on the stand of at least one of the Estate Agent firms' stand. It must have been Messrs. Guthrie and Co. who are their agents. In any case this firm showed a Shaw Hand or Power type of machine as used on estates, both those with small output for general machinery, as well as the larger estates for marking sheet rubber. Rollers were also shown for macerating, creping, sheeting, &c.

On Messrs. Shaw's own stand, the Patent Kiln, which has been placed upon the market by the Hunter Dry Kiln Co. of America, held sway. It permitted no rival to come alongside. There was no room had one wanted to be present. Yet for the work to be done the appliance was compact, and took up no more room than it ought. Dr. Hunter was there to explain the system—trays on a trolley to run in and out—but the method itself, we are assured, is simply one of intensifying and controlling Nature's own best drying conditions. It is so arranged that no period of the day is wasted. There is no six-hour or eight-hour trade union limit about the machine apparently, for the drying process goes on automatically, naturally and relentlessly for the entire twenty-four hours, and that too—so it is claimed—without the aid of any special care and attention. We must try and induce Messrs. Francis Shaw to show an illustration of this in their next advertisement for all to see it. Will it dry cacao, coconuts, ground-nuts, &c.? We should like to see a trial made with such crops, and shall await the results when they are made with interest.

We missed our other, and older friends, Messrs. David Bridge and Co., Ltd. We caught sight of Mr. Leslie Radclyffe, looking as young and energetic as ever, but of Mr. Robert Bridge we had not a glimpse. Yet, knowing the nature of the man, and the close attention he has given to rubber in Brazil, as well as in the East, we feel sure Mr. Bridge must have several new ideas bottled up at Castleton, so why did he not bring them out in the open for all to see? And that reminds us, we were discussing the tendency for hard cure or wet cure rubber to come into favour again. If they do, it will be interesting to see what appliances are introduced to help in the work.

Slab rubber was a prominent feature on the Malay stand, as Mr. Wray, who we were all pleased to see again, took care to point out. Slabs and sausages, as on the stall of Messrs. Davidson and Co., Ltd., were there, and this form it was claimed is the best for the rubber factory, because such rubber has the highest degree of strength and resiliency. The query arises in our minds as to whether such rubber will have to be washed in the factory. If rubber has to be machined and mastigated, it can be so treated on the estate just as well as in the factory, but—which rubber will keep the best until it is wanted? Above all, which process can best be looked to to standardize our supplies not only from one estate but all estates? Would it not be these slab, sausages, block or *pelle* forms, as we have so often asked for, and which we

discussed at length in our "Rubber Industry of the Amazon"?

Then we "struck" samples of the Wickham process, also Sir Henry Wickham himself who was close at hand. We learned much from him—of his view of the rubber industry—in a very few minutes. What a constitution he has and how clear his brain keeps. His is in truth a hard cure process, claimed to turn out men like rubber with great tensile strength. The advantages we understand of the Wickham process include a considerable reduction in the cost of preparation, a saving in transport, and an assured output uniform and standardized in quality. This is what is wanted. Will the process give it to us? Messrs. Roa and Co., Ltd., 9-11, Fenchurch Avenue, E.C.3, close by our City office, is the firm in charge of the patents.

But space compels us to stop. In our August issue we will continue our chatter, but must say here that Mr. George A. Ludington, vice-president of the Fisk Rubber Co. of New York, who visited the exhibition, proved himself to be of our opinion when he claims that what is wanted to-day, and what has been wanted all through, is uniformity in the output of rubber, not only of one estate but of all the estates. Shall we ever attain to such perfection? If we are to, which process will it be that is ultimately to enable us to attain perfection. In the August issue we shall conclude these reports on the Exhibition with an account of the machinery shown for rubber, coffee, etc.

Mr. A. W. Knapp, B.Sc., F.I.C., discusses Insect Pests in the Cacao Store

AT THE TROPICAL AGRICULTURAL CONFERENCE IN
LONDON.

THE subject of insect pests in the cacao store, Mr. Knapp told us at the Royal Agricultural Hall, has received such scant attention in published literature on cacao that one wonders if its importance is realized. Yet the high-class cacao from Ceylon, by the time it reaches the manufacturer, generally contains from 1 to 3 per cent. of beans which have been attacked by insects.

Cacao spoiled by insects is often described as being "weevily." This is not a correct description, as the insect usually present is a moth or its caterpillar, and when the insect present is a beetle, the one most frequently found (*Ptinus*) is one quite unlike the grain-weevil, and is more nearly related to the wood-boring beetle.

HOW THE BEANS ARE INFECTED.

The number of possible ways in which the beans can become infected with insect life is considerable. It can arise:—

(a) *By Insects on Trees and Pods*.—It has not been suggested, so far as I know, that any of the insect pests occurring on the trees and pods become troublesome in stored cacao. I should like to point out, however, that the beetle—*Aræocerus fasciculatus*—which is found on dead cacao pods, and which actually

serve a *useful* purpose by feeding on the mould, has been found by me feeding on West African cacao beans (not pods). The beetle is a friend on the plantation, but its larvæ are enemies in the store. Mr. W. H. Johnson (a former Director of Agriculture at Accra) has observed the closely related beetle—*Aræocerus coffeæ*—to be destructive of stored cacao on the Gold Coast.

(b) *On the Drying Platforms and in Tropical Stores.*—Small moths of the pyralid type have been observed and identified in the cacao stores of such widely separated places as Ceylon, Java and the Gold Coast. I have seen them in Trinidad hovering round the drying platforms and flying in the cacao store.

(c) *In Transit.*—In the holds of the ocean liners, the cacao may be placed alongside other cargo which is attacked by insect pests. The cacao runs further risk of contamination in the same way in the warehouses in Europe.

The pest most frequently found is a small silvery Pyralid moth called *Ephestia*. At first sight it closely resembles the nearly related clothes moth. It appears to be of tropical (Central American) origin, but is now widely distributed.

The best known species is the Mediterranean flour moth—*Ephestia kuhniella* (Zeller)—the larvæ of which far too often occur as a pest in mills and granaries. It was the caterpillar of this moth which worked great destruction in our soldiers' biscuits during the Boer War. As far as my observation goes,

THE E. KUHNELLA IS MOST FREQUENTLY FOUND ON CACAO.

However, the two species which have, up to now, been commonly recognized as the cacao moth, are *E. cautella* (Wlk.) and *E. elutella* (Hb.). I do not think that the three species differ very greatly in their habits.

As a rule, cacao which is badly infected is easily recognized by breaking the beans which contain the powdery excreta and silky threads of the caterpillar, or by observing caterpillars actually crawling on the outside of the bags, or, again, by finding them spun up in cocoons in the ears of the bags. Recent infection, however, is not always evident. The moth may have laid eggs on the beans in the bags, and as the eggs are much smaller than a pin's head, the cacao will appear perfectly good. If later this cacao is stored under conditions favourable to the development of insect life, the grub will hatch out and proceed to consume the cacao. These grubs possess fairly sharp jaws, and have often been observed to eat their way through paper and thin tinfoil. It is doubtful, however, if they ever eat their way through the shell or husk of the cacao bean as long as they can obtain food in any other way. Hence broken, cracked or germinated beans are more liable to be attacked.

It has been stated by Kipperer and Whympster that the moth lays its eggs inside the outer shell of the bean. This is not generally possible and the error may have arisen from the fact that the caterpillar, when first hatched out, is very minute and searches for a crack in the shell of the bean. Having got down a crack into the bean, it then feeds—not only

on the seed-skin, as is sometimes stated, but on the cotyledons themselves—and grows, so that when the bean is opened the caterpillar appears too large to have got in from the outside.

BEETLES.

Whilst the caterpillars of the moth *Ephestia* are by far the commonest and most evident in the cacao store, beetles are frequently present. Accra cacao purchased in Liverpool has recently been far more infected with beetles than with caterpillars of the *Ephestia* moth. I think the stores in Liverpool must be partly to blame for this, because cacao obtained from the Gold Coast direct is almost free from beetles.*

THERE ARE FOUR BEETLES TO BE WATCHED.

One of which, about one-fifth inch long, has been identified by the authorities at the British Museum as *A. fasciculatus*. They stated that it is not British, and when found in England must have been imported from the tropics. It is found on dead cacao pods, and it—or allied species—may become a serious pest to cacao stored on the Gold Coast if care is not taken. The caterpillars attack cacao. They make a smaller hole in the bean than the caterpillar of the cacao-moth, and they produce finer and less abundant excreta which, unlike that of the *Ephestia*, is not held together by silken threads. They fly easily and frequently, and thus may rapidly spread from one stack of cacao to another. They only appear to thrive at tropical temperatures, and probably need not be feared as a store pest in England.†

Ptinus Tectus.—These tiny beetles are about one-tenth of an inch long and are a dull brown in colour. Their characteristic appearance is due to their being covered with short hairs. The grub is small, white, and partially curled up. I have found them in cacao from the Gold Coast, Para and Surinam. As a pest they rank next to *Ephestia* in importance.

Ptinus Fur.—This well-known household insect is a small beetle, somewhat longer than *P. tectus*. Its most notable characteristics are the short fur on its back and the white spots on its wing cases. I have found this beetle on bags of cacao from the Gold Coast, Para and Grenada. They are not so frequently found as *P. tectus*, and apparently do little damage.

IS IT A PEST OR A HELPMATE?

A small beetle, having a bright blue body and red legs, identified by the British Museum as *Necrobia rufipes*, the "ham beetle," has also been noted in the cacao store. As this beetle only feeds on animal products, we must assume that it lives on the caterpillars of other insects which are present on the cacao beans.

* We should like to hear what the authorities up at Liverpool have to say to this. We have known such cases in London when both the importers, as well as the warehouse owners, attached the greatest importance to the presence of beetles in the cacao store-rooms.—ED., T.L.

† But need careful watching at producing centres when known to be present.—ED., T.L.

THE ORDER OF MERIT IN "GRUBBY" AND "NON-GRUBBY" CACAO.

The percentage of "grubby" beans varies very much, but in recent years has—in the main bulk of the world's cacao output—seldom fallen below 1 per cent.* The average for the world's production is from 1 to 2 per cent.† Mean of samples taken at intervals from 1916 to 1920 work out as under:—

Growth	Per cent. of insect- attacked beans
Grenada	0.5
Bahia	0.5
Trinidad	1.0
Samoa	1.0
Jamaica	1.0
Arriba	1.0
Pará	1.0
San Thomé	1.0
Carupano	1.5
Surinam	2.0
Machala	2.0
Ceylon	2.0
Accra, Grade 1	2.0
„ Grade 2	2.5
Cameroons	3.0
Accra, Grade 3	4.0

Mean = 1.6

The Accra Grade 1 resembled good, Grade 2 fair fermented, Grade 3 f.a.q. Although Ceylon is a fine cacao, it is frequently found to be slightly "grubby." This probably arises from the fact that the cacao is washed, and hence the shell is thin and brittle.

CLAYING NO HELP AGAINST PESTS.

It might be thought that claying the cacao would be an advantage from the point of view of preventing attacks by insects. Claying the beans may assist to keep away trouble, but it is unnecessary, as can be seen by noting that Grenada cacao, although unclayed, is remarkably free from insect life and actually better in this respect than clayed Trinidads.

Experiment has shown that the thick coating of earth as used in Venezuela does discourage the caterpillars from attacking whole beans, but is no protection if, as is usual, a number of the beans are broken. There is no evidence that clayed cacao, as bought, is more free from insects than unclayed. For example, two samples of Venezuela cacao purchased at the same time gave:—

Clayed beans	10 per cent. of insect-attacked
Unclayed „	1 „ „ „

Mr. Knapp had much to tell us about remedies and preventatives. Unfortunately, we have no more room. But enough has been said, we feel sure, to enable our readers to realize what a useful paper this authority contributed to the Conference, one which,

* According to Messrs. Vasmers. Ltd., the world production of cacao was 379,700 tons in 1920, against 460,500 in 1919, and 279,807 in 1918. This makes an average output for the three years of 376,600 tons, so even a 1 per cent. loss would equal 3,760 tons, or over 10,000 tons in the last three years.—ED., T.L.

† As with Dante, who on his journey with Virgil did not always encounter those he knew where he expected to find them, so will many be surprised when they see this list to find Arriba standing so high and Ceylon low down with 100 per cent. more "grubby" beans than Arriba.—ED., T.L.

‡ Samoa has a thin shell and is washed, or, as it grows more hybridized, does the shell thicken and is the washing omitted? How does Java, with its very thin shell and so many broken and not merely cracked, beans compare with the other growths.—ED., T.L.

if his ideas can be carried out, and (he would be the first to say) extended and improved upon will prove so valuable to planters as to become quite a classic among such papers, especially as Mr. Knapp pointed out, so little, if anything, has hitherto been published on pests affecting stored cacao. All this makes it the more necessary to have this and the other papers, with their discussions, published in full. We trust this can be arranged before long.

We should very much like to have included some notes from Mr. E. J. Organ's paper on "The Gold Coast Industry and its Recent Development," but have not the space necessary to do such a paper the barest justice. We would, however, call our readers' attention to an extract from it in the following article.

Trade, Politics and Finance.

LIKE most people, we have a bank, one which has charge of our surplus cash whenever we have any not immediately required. At this, the Alliance Bank which started in Bartholomew Lane (London) about sixty years ago, we have banked ever since, and are quite pleased to pay tribute to the kindly help and unfailing courtesy we have always received from everyone, from managers to messengers, even when we have asked for their help and advice on matters not immediately connected with our cash balance. Some years back the Alliance was swallowed, at one mouthful, by Parr's, which, in its turn, is an important (we would claim the most important) section of that huge banking amalgamation known as the London County, Westminster,* and Parr's Bank, Ltd. On account of our long connection with this banking concern, we have noted with interest that, according to their last report, the authorized capital of the Bank of British West Africa, Ltd., has been increased to £4,000,000 by the creation of 200,000 new shares, of which have been issued:—

33,333 to the London County, Westminster, and Parr's Bank, Ltd.

33,333 to the National Provincial and Union Bank of England, Ltd.

33,333 to the Standard Bank of South Africa, Ltd.

Those who have studied the proposals we outlined on the need of banking amalgamations within (and without) the Empire in the Finance section of our book, "How to Pay for the War," will not need to be told how satisfied we are with such a transaction, and how beneficial we feel sure it will ultimately prove to the Empire at large as well as to the shareholders concerned.

Speaking of prices and currency in connection with the cacao industry on the Gold Coast, Mr. E. J. Organ (of Messrs. Cadbury Bros., Ltd.) told us a good deal that it will be wise to note, especially the following: "Even more dramatic and spectacular than the in-

* Talking of the Westminster Bank, may we digress for a moment to say that an old friend who died in the 'nineties, when she came home from the East, applied for and secured some of the original shares of this bank which she held for years, marvelling at the big dividends she received. So much did she marvel at the profits made that she sold the shares because some meddling busy-body told her that no concern could be safe which paid such large dividends.

crease in the production since those 80 lb. in 1891 has been the record prices paid for the Gold Coast cacao, first the soaring heights and then the utter despondency. The first influence on prices was felt for a very short period in the very early days of the war, when it was feared there would be a world-wide economic breakdown. Cacao on the Coast was almost being given away, and the Liverpool market went down to 45s. Once it was seen, however, that armies and peoples had to be fed confidence was restored, and the price became very firm. This unexpected rebound in prices and expansion in the volume of trade produced another cacao crisis in the Gold Coast in the latter part of 1915 and the early months of 1916. The crisis caught the West African Currency Board napping, and the available quantity of silver to finance the cacao crop was absorbed when only half of it was marketed. For some weeks there was a complete standstill on the Coast and an entire dislocation of business.

"The Bank of British West Africa made strenuous endeavours to meet the situation,* but owing to the rapid rise in wages in Great Britain the needs of silver to pay the soldiers and the enormous amount required for munition workers, the shortage in West Africa was coincident with one almost as acute in our own country, and although silver coinage was being minted as fast as possible, there was no margin left for export to the Colonies. The result was the introduction of an issue of Treasury notes into West Africa, and this startling innovation among a people who had been slowly weaned from the laborious system of barter to confidence in a tangible currency resulted in great loss to the trading community—European and natives alike.

"There are two observations I would like to make about West African currency:—

"(1) That in my opinion there is a lack of adequate commercial representation on the West African Currency Board.

"(2) That it is not the function of a Currency Board to make a profit, but to distribute currency.

"For many years the West African Currency Board made a considerable profit on its silver issue owing to the low price of the metal, and I should have thought it would have been wise to expend some of the profit so made to purchase silver even at a loss." Further on Mr. Organ said:—

"The season 1919-20 saw the great boom in Accra cacao. The demand for cacao and chocolate in Great Britain was unprecedented, and although the Control was taken off, customers was strictly rationed by manufacturers, whose most strenuous endeavours failed to satisfy a tithe of the demand. In the U.S.A. there was also an enormous chocolate boom, added to which the brewers and distillers, threatened with the approaching danger of abolition, conceived the novel idea of giving the people cacao instead of cocktails. Then there was an expectant hush about Germany. Everybody said she would be coming on to the market again, though some of us were very

sceptical on account of the low value of the mark.* The needs of Central Europe were said to be very large, so all sorts of people speculated in cacao, and laid in stocks to provide for those contingencies which never arose. For a brief and glorious period cacao seemed to be the latest craze of financiers, so that early last year Accra cacao, once regarded among the contemptible things of the earth, rose to the amazing figure of 130s. per cwt. on the Liverpool market. On the advent of the inevitable slump that followed it is unnecessary for us to dwell here, but within a single year Accra cacao touched its highest and lowest price, as fine fermented on the Liverpool market has been recently as low as 42s. . . . We can estimate that there are at least 25,000 cacao growers in the Gold Coast, with a whole swarm of attendant brokers and intermediaries. Those who want to see the Gold Coast cacao as a graded crop must realize, therefore, that, without enormous cost, which neither the industry nor the colony could stand, an enforced system of grading would be impossible. *The question of quality,*" emphasized Mr Organ, *"is the one outstanding problem of this great industry, and a close and careful study of the trade since 1910 has convinced me that there is only one solution to the present difficulties and the future dangers. If the European buyers will take the trouble to insist on a uniform, well-prepared and well-fermented cacao, they can raise the standard of Gold Coast cacao to a consistently high level. A very great responsibility rests in their hands, for it is on them—and on them alone—that depends the decadence or survival of this great industry."*

As regards market news, attention is being called to the steady drop in the price of sugar. Not long ago it was 19s. for 96 per cent. Cuban in warehouse (in bond), now it is under 14s. Jam makers are calling attention to this in the press to prove that jams will be much cheaper, but cocoa, chocolate and confectionery makers do not seem inclined to follow such a wise lead; in fact, toffee sweets, if not others, seem to have been raised in price—at 1s. per $\frac{1}{4}$ lb.=4s. per lb., over £22 per cwt., one cannot help wondering what "profiteering" means against the fall in the price of 96 per cent. sugar.

Meanwhile (duty paid) B.W.I. Crystallized has been selling up to 50s. 6d., and Grocery Muscovado and syrups up to 45s., whilst White Mauritius and Brazilian have realized 52s. With coffee, the total Brazilian receipts to date amount to 262,000 bags, against 178,000 for the 1920-21 crop. The Rio Exchange, like the English £ sterling in New York, continues to drop. It is now just below 7d. Those buying raw materials from Brazil should do well at such a rate, although, of course, such an exchange will do harm in the long run. Coffee spot sales include good greenish Mysore up to 80s. 6d., low middling to good mid. greenish 83s. to 102s., good to fine greenish 108s. to 125s., peaberry up to 119s. 6d. Greenish Coorg went as high as 76s., middling greenish to 89s., good bold to 101s., peaberry 85s. Fine bold Neilgherry fetched 114s., good middling bold 104s.,

* The Colonial Bank, which has so many branches throughout West Africa, was good enough to keep us well posted throughout this period of anxiety, and supplied us with reliable news of the progress made right up to the end.—ED., T.L.

* We have just learned that, in spite of its depreciated currency, the deliveries of raw cacao for Home Consumption into Germany have been very high, say, 38,000 tons to June 30, against 55,000 tons (its record) in 1912.—ED., T.L.

peaberry 94s. Fine ordinary Nairobi sold up to 62s., middling to 77s., good middling at 87s. to 92s. 6d. Medium robusta 38s. Bold blue-mountain Jamaica recently sold, we were informed when examining the sample, at 192s. 6d., less bold at 142s. 6d.

Of foreign kinds, bold fair Colombian went at 90s. 6d., middling Costa Rica 110s. to 116s., bold 115s. 6d. to 120s., good greyish 128s., peaberry 110s. 6d. to 127s.

Cotton is at 8·17d. for spot fully middling Americans, rising to 9·58d. for November. Sakel Egyptian runs at 14·4d. to 14·70d. according to delivery. Manila hemp is worth about £36 10s., New Zealand £41. No news of sisal. T.N. Orange shellac is at 320s. spot, Garnet 270s., much lower prices, about 225s. for futures. Palm kernels are reported dearer at £21, against £19 10s. in the last report and £30 10s. a year ago. Copper is around £72, and tin £168 to £170.

Coming to finance, the following is a comparison of the principal points in the returns of the Bank of England at the present time and during the corresponding week a year ago:—

July 16th.	1921	1920
Bank Bullion ...	£128,373,661	£122,879,497
Reserve of Notes ...	17,048,675	15,682,145
Private Securities ...	77,612,637	78,622,562
Notes in Circulation ...	127,955,565	124,237,640
Rate of Discount ...	6 per cent.	7 per cent.
Price of 2½% Consols ...	47½	47
Price of Bar Silver ...	37½d.	52½d.

The London Cocoa Market.

BY THE EDITOR.

THE general dullness continues. It seems common to all countries, although Germany, I believe, is going ahead. Discussing the matter with the Special Correspondent of the *London Confectionery Journal*, he showed me the notes he is sending in for their issue of July 21st, in which he has compared the fortunes, i.e., the misfortunes of the theatrical ventures of late in France, Italy and the U.K. with the demand for cocoa, chocolate and confectionery, and through these latter for raw cocoa and sugar. All these three countries, he shows, are down on their luck so far as the theatres go, and so they are with the demand for cocoa, the reason being the same. The public, apart from the profiteers, have no money, no surplus money that is, to spend and so the theatres and the confectioners are feeling the pinch. Until theatres go back to the old rates and also give better value for the money, the public who have to pick and choose in these days will not patronize them. It is the same, only much more so, with the sellers of chocolates and sweets; the cheaper that sugar—as a raw material—grows, the dearer grows the price of sugar sweets. Why is this, how can the shops expect to prosper when such wares are above the spending capacity of the general public? Chocolates of late have come down in price. The nearest shop to where these notes are being written has got chocolates in the window at 2s. per lb., but there are shops around still asking 5s. and wishing you to believe these are reduced (maybe the quality is, but not the price), but what has no excuse for the price asked for them are

toffee sweets with nuts at 8d., 9d., 10d. and 1s. per ¼ lb. Toffee (only) sweets could be sold at 1s. per lb. easily at the present price of sugar. Since, however, this is not to be as yet, it is no wonder the sale of tropical produce is held back, and a million and more people are out of work. If the manufacturers in the U.K. will still try to fleece the public of any little money they may have left to spend after they have finished with the tax and rate collector, the Post Office and telephone charges, they cannot expect the trade of the country to expand, as they leave us no money to spend.

Germany, on the other hand, goes on smiling and happy—as always. No wonder they are fat. All the same they work continuously and with an object. They do not dream—like every boy and girl seems to do over here—of money dropping into their hands or of fortunes being made by backing the right horse at one or other of the race meetings that are for ever going on. Naturally there is more life in the German cocoa and chocolate trade in comparison with 1918, 1919 or 1920, and with their theatres also than we can show. What America is doing does not seem too certain. You hear many complaints of dull times over there, but she seems to absorb cocoa still and so long as she does, what matters?

Meanwhile, if the world's cocoa markets are so dull and unable to absorb cocoa, how fortunate for us all—if not for the planters—that there has not been an overwhelming supply of raw cocoa. As the following tables show, the U.K. has received only 40,251 tons during January-June, against 74,050 tons last year and 76,758 tons in 1919. France, in proportion shows an even larger falling away, having received only 11,382 tons for January-April = four months, this year, against over 21,000 tons last year, whilst she took into consumption 9,416 tons against 18,921 tons a year ago, or just over 50 per cent. less. If only this important—or should be important—cocoa consuming country could be started off at full steam, how much better would the raw cocoa market be on account of larger orders from this one market alone.

Coming to the U.K., the Board of Trade returns show a small reduction in our deliveries for Home Consumption during June—4,047 tons against 4,549 tons a year ago—but there is a wonderful falling away in our landings of raw cocoa. During June only, the U.K. received this year but 4,325 tons, against 13,157 tons last year and 15,925 tons in 1919. Why is this, and being so, why is our market still so dull when, in comparison, we are receiving so little cocoa? What increases does Germany show against our reductions, one wonders? Some say her deliveries of raw cocoa for Home Consumption have already reached 75 per cent. of her pre-war demand.

Board of Trade Returns, showing the movements of raw cocoa in the U.K. during the half-year, January-June:—

Six months	Landed Tons	Del'd. H.C. Tons	Export Tons	Stock, June 30th. Tons
Jan.-June, 1913	20,072	... 14,279	... 3,832	... 10,700
" " 1919	76,758	... 31,200	... 2,071	... 64,150
" " 1920	74,050	... 29,151	... 18,575	... 65,400
" " 1921	40,251	... 22,703	... 9,718	... 57,200
	Decr. 33,799	Decr. 6,448	Decr. 8,857	Decr. 8,200

Against this, much as one regrets to see a reduction instead of an increase in our Home Consumption deliveries, France shows up very badly for the first four months of the year. One wonders if she can pull up later on. Why should she be so bad? Sugar is cheap and she can get coal, whilst, judging by ourselves, the price of the finished article leaves plenty of margin for profit, as wages are not so dear over there as we have to pay for everything.

One of our manufacturers, a London firm, has been calling attention in their advertisement in the trade press that the U.K., very foolishly, has been importing over 5,000 tons of foreign manufacture cocoa products, whilst we could make as good a quality article and sell it as cheaply as the foreign makes. This is, in my opinion, where the loose screw is to be found. The English makes no doubt are as good and better in quality than these imported ones and the retail price to the public may be the same, but nothing will make me believe that the price to the distributors is the same as the terms offered by the English makers. If they were, the English makers would get the orders, because who would trouble to go to a foreign maker without an advantage somewhere if your own folks can serve you as well? In both cases I feel sure that the price which the public ultimately pays—and which alone affects the planter because it affects consumption—is too high, and until this is dropped, we shall continue to have a shrinkage in our deliveries and a poor market for raw cocoa. What will happen, if we continue to drift the way we are doing and which we show every sign of continuing to do, when our supplies become normal, or as large as they are now small, it is difficult to imagine. One day, when we get an Imperial Parliament, this holding-up of the prosperity of the Overseas Empire for the sake of a comparative few on this side may be dealt with and checked as it should be now.

Here are the Havre figures and prices, for comparison with those of London and Liverpool, to show the comparative value of each (at the moment) as a consumer of raw cocoa. During June, Havre received 9,822 bags only, but delivered 42,000. In May she received 13,000 bags more than she delivered owing, if you refer back, to 33,000 Accras having come along against 4,300 in June. Here are their June movements:—

	Stock Bags 1921	New York \$3.75 Paris Fcs. 46.70	Stock Bags 1920	New York \$3.95½ Paris Fcs. 48.08
		Value Fcs.		Value Fcs.
HAVRE, <i>June 30th.</i>				
Pará	5,229	116 to 126	2,757	275 to 310
Bahia	29,321	97 „ 128	44,152	215 „ 260
Venezuela ...	22,230	135 „ 263	20,036	295 „ 425
Trinidads ...	27,120	128 „ 133	41,375	280 „ 300
Grenada & O.W.I.	10	100 „ 130	10	240 „ 280
San Thomé ...	25,543	92 „ 128	65,446	200 „ 260
San Domingo ...	35,636	94 „ 104	19,694	215 „ 250
Haiti	29,003	75 „ 100	23,105	180 „ 220
Accras	65,903	102 „ 107	54,917	185 „ 205
Guayaquils ...	11,722	145 „ 165	12,926	310 „ 340
Others	19,252	—	17,530	—
Totals	270,969 bags		301,918 bags	

It is interesting to note in the above how the accumulations of San Thomé have dropped and those of Accra remained steady and even increased. San Domingo has nearly doubled its stock, but both Bahias

and Trinidads are much lower. Now let us see what London has to show against the French returns. It will be noted that we have just 10,000 bags less than a month ago.

LONDON STOCK, July 16th:—		1921	1920	1919	1918
		Bags	Bags	Bags	Pre-war
Trinidads ...	...	24,122	47,061	25,360	10,362
Grenadas ...	...	25,168	23,098	14,554	7,809
Other W.I. ...	...	7,759	15,002	2,500	4,080
British African ...	...	19,128	59,820	36,901	11,452
Portuguese African ...	...	1,664	3,274	4,854	4,764
Cameroons ...	...	1,378	1,378	3,121	4,013
Ceylon and Java ...	...	16,788	21,620	7,736	18,401
Guayaquil ...	...	62,188	82,601	16,186	12,158
Bahia and Brazil ...	...	328	216	986	604
Other foreign ...	...	24,703	36,155	3,990	7,747
Totals ...	...	183,226	290,225	116,188	81,390

Turning to Liverpool, this market also has been a sluggish one. This certainly is not due to the dearth of raw materials nor to their stock. The same as elsewhere, the landings in Liverpool are surprisingly small against the last two years. There must still be plenty of cocoa in Liverpool if buyers can only be found. Do the heavy deliveries up there give any indication of what Germany may be consuming of Accras from that port as well as San Thomé and Bahia from elsewhere?

Liverpool movements for the half year. Jan.-June—

	Landed Bags	Del'd Home Use Bags	Exported Bags	Coastwise Bags	Stock, May 31st. (not end of June) Bags
1919 ...	869,266	6,152	11,122	6,809	172,294
1920 ...	827,615	36,311	47,439	46,996	202,296
1921 ...	497,893	47,669	51,362	262,824	346,696
In June only	45,026	4,452	10,402	36,330	bags
„ May „	56,026	8,622	10,440	28,829	„

Producing centres which are behind must wonder why they are so whilst Bahia has done so well. I will give the Bahia movements in full for the year, as they will be useful for reference. When this centre exported 800,000 bags, we were assured it could send, with the area planted, about 50 per cent. more. Since the new areas have been planted up and have come to maturity around Ilheus, I would still tell you that—in a normally good year—Bahia could still send half as much cocoa again as she does, were all the cocoa gathered and the trees cared for so as to yield evenly well all round.

Bahia Movements—Jan.-May—

	1920-21 Receipts Bags	1920-21 Exports Bags	1919-20 Receipts Bags	1919-20 Exports Bags
May ...	9,535	15,291	6,227	107,540
June ...	50,371	33,724	22,721	23,198
July ...	75,979	53,656	41,285	41,533
August ...	101,415	101,257	74,691	47,707
September ...	125,869	114,429	112,078	94,829
October ...	142,916	118,326	76,038	102,388
November ...	101,727	102,372	123,428	97,406
December ...	145,966	97,994	80,405	63,565
January ...	76,674	132,044	56,449	41,311
February ...	81,362	66,568	40,532	55,037
March ...	45,446	95,153	15,471	76,821
April ...	15,141	73,515	2,769	43,776
Totals ...	972,401	1,004,329	652,094	795,111

Guayaquil Receipts—Jan.-May—		1921.			1920.
		Quintales.			Quintales.
Arriba ...	...	309,126	...	...	365,613
Machala ...	..	41,498	...	...	39,638
Balao ...	...	7,311	...	...	3,636
Total ...		357,935	...	...	408,887

America continues to take the bulk of the Trinidads, leaving for other countries what she does not want (except with estate marks sent to London to sell). London may have a full share of the Grenadas, but it is a pity we do not also take more fine Trinidads:—

Trinidad Exports—eight months—October 1st.-May 31st—

	To England Bags	To France Bags	To U.S.A. Bags	Total Bags
1920-21 ...	16,021	29,040	173,940	= 219,001
1919-20 ...	37,798	97,433	105,178	= 240,409
1918-19 ...	43,670	128,709	45,740	= 218,119
1917-18 ...	12,856	2,100	156,864	= 171,820

Accra exported 11,034 tons during May, against 9,977 tons last year, making for the five months 67,930 tons against 75,884 in 1920. Grenada got away 43,117 bags only against 47,281 during October-May = eight months, 1919-20 and 45,012 bags in 1918-19, so that, as her record is 80,000 bags for the twelve months, she is not doing well, as it is doubtful if her 1920-21 exports will exceed 50,000 bags. Being unlikely to pull up, some say she will not ship 10,000 bags more, is possibly the reason why the large buyers on this side have been willing to take what fine marks were on offer up to 56s., the present level.

In conclusion, when one comes to talk of prices there is very little to say. The most definite and reliable statement is the one just made, viz., fine

Grenadas are selling at 56s. for the best marks. Fine Trinidad marks, of which the supply is very small, are held for over 60s., but "estate" grades of collected Trinidads seem altogether an unknown quantity. To-day they are down to 46s., then up to 52s., then at 47s. or 49s. All depends on the anxiety from the island itself to sell what they have to offer, and this is what seems to be spoiling (the reputation of) the Trinidad market on this side. The parcels sent here do not seem to be, from all accounts, as good as they should, so no wonder prices are low and uncertain. Are they what buyers for America do not care for, hence the anxiety to get rid of them to someone?

Common to fair grades of all growths are difficult to place. They have been so for a long time. They will be so for months to come, until the railways, the theatres, and the chocolate and confectionery trades are booming, i.e., when prices are down and services rendered in return are up. Then will the public spend all they can spare and enable the demand for raw cocoa to include the common as well as the good marks. As we go to press the Lisbon figures for June have come in and show another big drop in their stocks, as the deliveries are just eight times as large as the receipts, say:—

Lisbon Movements—

Stock on May 31st.	...	...	...	114,609
Landed in June...	...	...	...	4,042
		Makes	..	118,651
Delivered in June	32,968
Leaves stock on June 30th, 1921	85,683
Against " " 1920	114,481

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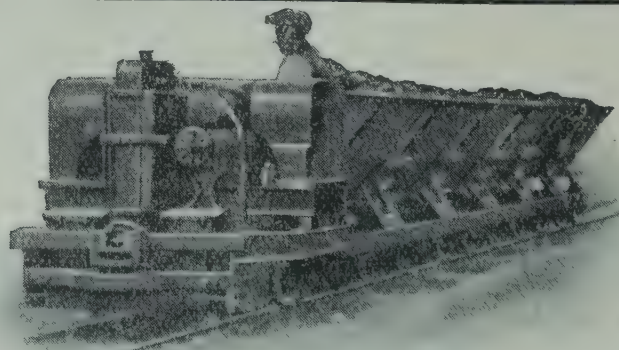


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VOL. XVII.—No. 8.]

AUGUST, 1921.

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The Rubber and Tropical Products Exhibition.

MACHINERY AND APPLIANCES—THOSE ON SHOW AND THOSE THAT REMAINED AT HOME.

"THIS, on the whole, is a mighty fine exposition, both for what you do see and for what you don't." Thus commented one Overseas visitor to the Royal Agricultural Hall in June, and we, listening to his remarks, the above and many others, at first were puzzled, but soon realized what he meant.

Whilst talking we "struck," according to our newly found friend, the really quite magnificent exhibit of

WM. MACKINNON AND CO., LTD., OF ABERDEEN.

The space allotted to them in the Gilbey Hall, by no means a small one, was almost solid with machinery, of which we were told each and all had some improved note about it since the former exhibition in 1914. From what we could see, the firm certainly could not have been standing still during the past seven years. This was seen in their rice machinery, which was of a class that dispelled any doubt in our minds—if any ever existed—as to the increased ability of this country to supply the ever-increasing number of rice planters with their requirements so as to enable them to turn out their rice low as to cost and attractive as to appearance. One or two not unimportant improvements were pointed out to us, as with the introduction of an oscillator instead of rollers to grade the rice. This seems likely to help popularize their machine considerably.

Perhaps the working model of their coffee curing factory attracted the most attention. It showed how the coffee is worked from start to finish without being handled. Elevators raised the berries to the top floor, from which it descends by the chute to the cherry coffee separator, where the cherry is graded and then pulped; during this last process the bulk of the pulp goes out at the back. Meanwhile the berries imme-

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diately go through the pulp separators, a long cylinder-shaped receptacle, through which it passes to the filling tanks on the way to the fermenting tanks, where the coffee remains for about twenty-four to forty-eight hours. After fermentation it passes to the washing tanks, and then to the elevator to be fed into the dryer—a great feature of the plant—where the beans are evenly dried and a uniform colour given to the coffee. The drying process, it seems, can be worked either by live steam, by exhaust steam, or by direct fire heaters. After drying the coffee passes through another elevator to the top floor to the peelers and polishing machines, from whence it emerges minus the silver skin and nicely “bloomed,” the dust and shell being drawn away by the suction fan for use as fuel, whilst the cleaned coffee goes, still by gravitation, to the bottom floor, where it is graded according to size, and any dust or shell remaining being removed at the same time. The beans now appear finished and ready for market in five grades. Triage or siftings, 1st, 2nd and 3rd class coffee, and finally peaberry, and the elephant or large beans. Perfect grading, it is claimed, is thus secured, and that means a perfect roast when the coffee is prepared for use.

Here the remarks of our friend broke in with the wish that

JOHN GORDON AND CO. OF DASHWOOD HOUSE

had also been an exhibitor, and lively discussion followed about their coffee and rice machinery which had been sent to South America, to Sao Paulo, to East Africa, &c., whilst their maize hullers—as sent to Mombasa for Kenya Colony—were without a rival. Their Guardiola Cacao dryer, as used in the West Indies, should be in general use throughout Bahia, if that centre wants to see the end of its nominally “fair” class of cocoa which generally carries too large a proportion of unsound beans, and to send reliably superior parcels to markets. By this time we had, for some minutes, been standing up in

THE STALL OF MESSRS. DAVIDSON AND CO.'S OF “SIROCCO” FAME,

and congratulating their representative on the honour recently bestowed on the head of the firm, now Sir Samuel Davidson, K.B.E., M.I.Mech.E., &c., well known as the chairman and managing director of the Sirocco Engineering Works, Belfast, and also as one of the oldest living representatives—born 1846—of the tea-planting community,* and were soon absorbed in mastering Sir Samuel Davidson's latest invention in the way of rubber curing, about which we had something to say in our leading article last month, when we suggested that there was a tendency to-day to “hard-cure” rubber in balls, sausages or blocks more on the lines of the Brazilian method than was the case in 1914. Hence the interest we took in

THE DAVIDSON PROCESS FOR THE PREPARATION OF RUBBER LATEX.

We soon found ourselves attending a demonstration of this process in company with Dr. Schidrowitz and others. So far as we understand it, the chief aim is

* As we go to press, we learn with the greatest regret of the death of Sir Samuel. His absence will be badly felt in the economic world.

to turn out an absolutely reliable standard of rubber from any estate, so that the bulked parcels could be sold as one even quality like hard fine Pará. We watched the proceedings from start to finish, and have no improvement to suggest, unless it is that the finished article should not be too completely dried. Why should it? The Brazilian *pelles* are not, and, at the time of writing, they were quoted about 11½d. with 20 per cent of water, against 8½d. for Eastern plantation that is all but stone dry.

The dehydrating machine followed by the duplex and triplex rollers must, in our opinion, “knock out” enough water. We have never been in favour of stone-dry rubber, and are less so than ever at times like the present, when the raw material hangs on hand and is having to be stored in immense quantities. Judging from what we saw of the Davidson rolls, they seem to be about right, and we shall be interested in watching the reception of this new process among the producers on the one hand and the manufacturers on the other.

THE TYNESIDE FOUNDRY AND ENGINEERING CO.

Moving on to this stand, we encountered our American talking to Mr. Elsworth, Jr., for all he was worth concerning the scientific drying of copra as compared with natural ones, or, as he put it, of drying methods that left nothing to chance or the weather to spoil your copra and other crops.

All this arose because, as most of our readers know, this firm makes the well-known “Chula” copra dryers, and their exhibit consisted of one of their Vertical N.D.1. type machines, and also a working model of their “D” type with trucks and power-driven fan.

The vertical N.D.1. machine (of which an illustration appears on p. vi of our advertising pages) is of very simple construction, and is intended for small estates or for those just beginning to produce. No driving power is required, and drying can be started within half an hour after lighting the fire. Either husk, shell or wood can be used as fuel. The trays are so arranged that each tray has fresh warm air passing over it, thus ensuring a uniform rate of drying on all trays. This machine turns out five cwts. of copra per charge, the drying taking from ten to twelve hours.

The model of the D. type machine showed very clearly the construction and method of working. The copra is spread on trays which are stacked on special trucks. These trucks pass through the drying chamber or tunnel and are pushed forward at certain intervals. Through the tunnel a strong blast of hot air is forced, the temperature of the hottest zone being about 180° F. (*see opposite*).

The air heater for producing the hot air is a very substantial apparatus developed from this firm's experience with tea drying machinery. The fan is built into the heater, and, although of large capacity, only requires two-horse power to drive it. The fuel used is husk, shell or wood. Samples of “copra” produced by estates using the “Chula” dryer were on view and created considerable interest. The sample from the United Sumatra Rubber Company's Serapoh Estate was a particularly fine one. It was taken at

random from a recent shipment. Seeing this, it did not surprise us later on to hear that in the competition for copra drying machinery the "Chula" was awarded first prize and the gold medal.

At this point the friend wandered off to discuss the Hunter system of drying on Messrs. Francis Shaw and Co.'s stall with what we had just seen, whilst we called at the stall of

THE FOUR OAKS SPRAYING MACHINE CO., LTD.,

to discuss their new pneumatic battery sprayers with Mr. Ludford, the head of that go-ahead firm, and to ascertain the advantages for them. On this latter point we were assured by Mr. Ludford that several of the dozen or so advantages were those for which we have been clamouring since the 1911 exhibition or for ten years or so. These included rapid filling, no pumping needed whilst spraying, both hands free to direct the spraying lance, even air pressure throughout, as the machine fills from the *bottom* and not through the top, as in other types. This means that no chemicals are spilled down the side of the container, and consequently cannot burn the clothing or back of operator. The top being sealed prevents the liquid from spilling when the operator is walking or climbing to do the work. No measuring of liquid is necessary as when filling ordinary pneumatic sprayers. A glance at the pressure gauge tells you at once when the machine is full, whilst there is no waste of liquid in filling. As the machine releases the liquid but not the air, it is only necessary to pump in air once daily, however many times the machine may be used.

There was much more that we learned, for all this was news to us. We learned that a battery can consist of any number of sprayers from three to twelve, and that so successful have these proved on the estates that it is considered that they can cope with any outbreak of disease.

We missed the exhibit of

WM. WEEKS AND SONS, LTD., OF MAIDSTONE,

who, as mentioned in our May issue, had a striking exhibit at the Building Exhibition, but it is far more important, if you want to secure orders for spraying machines, to come before buyers in the tropics, especially when you know the class of goods that they want.

Crossing the Main Hall, we next found ourselves examining

THE PEACHY PROCESS,

but did not exactly "place" it, as our American friend would have said, for when we were not upstairs at the Conference, there was always such a crowd asking questions that we have had to defer inquiries for a future occasion. From what we did see and could gather, however, we feel (as stated in our leading article last month) that the Peachey Process may be one of those which will ultimately enable Eastern Pará to secure more favourable terms in the world's markets, especially in times of over-supply.

Inquiries from B.E.A., where a good deal of flax growing is being discussed and carried out, took us along to view the automatic combined flax-breaking and scutching machine of

MESSRS. ROBERT BOBY, LTD.,

who, as most folk know, are now associated with Messrs. Vickers, Ltd. We wished to study the hood for collecting the dust and shives and also the air-duct through which the fan draws away all such waste. This patent, the invention of Mr. Swyng-hedauw (a name difficult to pronounce or remember), does away, we were told, with many of the dangers and some of the costliness of the older machines, and offers a great saving in labour and also in the fibres of the resultant flax which are more evenly and gently treated, and so turn out a better sample with less waste.

So far as we could gather, the distinguishing features of this machine include the larger percentage of fibre secured, consequently a smaller output of waste or tow. Ease and safety in working and the power required, under $1\frac{1}{2}$ h.p. An illustration of the machine without its hood appears on Advt. p. xxvi, which we trust those interested in flax growing will turn to.

BOBY'S NUT-CRACKING MACHINE

next claimed our attention, for having just witnessed a demonstration by Mr. Paul Tingey of his palm-fruit depericarping machine, we now wanted to see what Messrs. Bobby had to offer us for cracking the nuts after their fleshy covering had been removed. Their cracker, known as Tarrant's patent, seems very portable and likely to make the most of the native labour used to work it with the least amount of effort. It would be interesting, therefore, to see if this idea turns out to be correct on the West Coast. Of a portable character, the machine should be easy to transport and also to put together. The strain of cracking is contained apparently between the two side frames, each of which is a single casting, and are held together by three stay bolts. It works ungraded nuts of all sizes, large and small, it is claimed being equally caught and cracked. The feed is automatic, and the liability to jamb very small if it exists at all. On the whole we hope our West African, Brazilian and Eastern friends who are going ahead with oil-palm cultivation will pay attention to this cracking machine, and let us know if they have encountered anything that does the work better. In this firm's advertisement, p. xxvi, an illustration will be found of this cracking machine which we had not the room to include here.

Having had an inquiry for sisal machinery, we rather missed seeing the effective machine that has been on the market for a good many years past and made by

ROBEY AND CO., LTD., LINCOLN,

and then remembered, with regret, that this firm was not represented. When the next exhibition and conference are held, what a number of firms who could not or would not exhibit this year will be just "tumbling over" each other to let the tropics and sub-tropics see how their latest appliances can help develop the resources overseas. Nothing, we hope, when that day comes, will receive more attention than fibre cultivation and extraction. We cannot "move" without ropes, twines, canvas, sacks, sacking, &c.,

and yet how little is known of where the fibres that make these necessities come from, or of how the fibres are obtained when the parent plant is known of. We have dabbled in fibre production for many years and paid careful attention to the matter since 1890, so know something of the patience and money that has been expended on this important industry, and also on making paper from the waste fibres as well as those of kindred plants as the banana, &c.

We remember the Raspadors and the early Prieto machines; altogether we have a list of over twenty makes. One wonders how they have fared and where they are now. How do they compare with the Robey machines past and present, and since this one is still to the fore and well known, whilst even the old Prieto seems to be lost in a haze, what are its good points which have enabled it to outstrip its competitors? As this is an account of the appliances shown at the exhibition, we cannot discuss the matter, but those, like ourselves, interested in fibre extraction might do worse than write to Messrs. Robey at Lincoln for particulars of their machine.

We would, however, add that, if our memory has not played us false, this firm has constructed and delivered a number of their machines since November, 1918, showing that if other industries have tended to be flat, sisal production has kept going. These later makes carry several important modifications suggested by the users, which it is thought will increase their efficiency, and we heard recently that in competition with other makes the Robey decorticator showed to advantage on several points.

THE WICKHAM HARD CURE PROCESS.

Many visitors to the exhibition seem to imagine that we knew all about Sir Henry Wickham's process for curing rubber. We had to own that we practically knew nothing of it, and had been quite unsuccessful in trying to learn anything concerning it. We believe the principle involved is one on the high road to our Christmas dream of about ten years ago, viz., that you put in the latex at one end and withdraw a *pelle* or cube of blocked rubber at the other, but cannot say for certain. What we did hear, however, was that, as with the pre-war Byrne process, the cost of the Wickham machine will be put as low as possible—the more popular it is and the more that have to be made the lower the price—and a royalty charged per lb. on the rubber made by it. This statement is subject to confirmation, for we have not seen it in print.

BAKER-PERKINS NEW RUBBER WASHER.

In their well-known advertisement (on page viii) facing the title-page of this issue will be found a photo of the latest machine of this type, one which was on show at the Agricultural Hall, where it was well known as being firmly established both on plantations abroad and in the factories over here where we have seen them at work. In this, the latest improved make, attention has been given to the easy dismantling of the machine for necessary periodical overhauling, a strengthened construction as pointed out to us having been introduced to make breakdowns unknown or reduce the number to a minimum, both to

save time and money and also to prolong the life of the washer.

MESSRS. CADBURY AND FRY'S STALLS.

These firms did not exhibit machinery of steel and iron, but only of that trade machinery without which the commerce of the Empire would not exist and we should not be fed. Much praise was given to the artistic design of both stalls. We are afraid Messrs. Cadbury scored on this point, but the excellence of the beverage given out so freely to all who wished to taste, made it a dead-heat between the two competitors, whilst their hospitable seats in the midst of a busy centre which was not well supplied with seating accommodation met with general approval.

LURALDA, LTD.

showed their well-known compressed wood chests for tea, rubber, &c., which have been doing so well since it was found out how hopeless it is to try and economize in buying cheap Eastern-wood packages to ship tea, &c., to oversea buyers. What we have said more than once in our columns as to the prejudice against tea exported in Eastern-wood chests has certainly increased the demand for reliable packages. Messrs. Luralda have, we believe, found that sales of their boxes have increased considerably on that account. Fifteen per cent. off the freight, they claim, is secured in the first place, whilst increased preference for goods packed in such boxes is being shown in all markets.

May we here stop a moment to congratulate Mr. Libert Oury, the managing director in London, on the exhibit of

THE CIA. DE MOCAMBIQUE?

One day, given the present management and a little luck, we ought to hear much more of this Territory as a producer of cotton, tobacco, sugar, sisal and cattle in particular, whilst its coconut estates and sugar production may yet make things "hum" and competing centres "sit up" with envy. We hope they will do so.

FRANCIS SHAW AND CO., LTD.,

and their exhibit we discussed at some length last month, and also had something to say about their makes of rubber machinery included at other stands, especially that of Messrs. Guthrie and Co., Ltd.

THE "TIMES" OF CEYLON,

we were glad to see, were again exhibiting. We met there an old friend in the shape of Sir Henry Wickham and his Heneratgoda giant baby, which gives milk—immense quantities—instead of consuming it. We were glad to see both Mr. Crosbie Roles and Mr. Hutchison on Ceylon Day looking fit and vigorous. Long may they remain so.

The same to

DR. A. H. UNWIN,

the forestry expert, who shared a stall with West Africa in the Gilbey Hall. His collection of timber samples and books on forestry must be fairly ex-

haustive, and were certainly much too interesting for us to linger near to.

We were sorry that our old friends, Messrs. David Bridge and Co., Ltd., were not exhibiting. They have become such a column of strength in the tropical world that not to include such a prop leaves too much of a vacuum. In the vegetable-oil world we would like to have seen Messrs. Rose, Downs and Thompson, and where were Messrs. A. and F. Craig or Messrs. Scotts? What a crowd the Anderson expeller would have attracted had it been there? and we wish that the Cie. Générale du Congo had included their wonderful "Drott" semi-Diesel motor which can be run on palm-oil fuel. Why was it not on show? Messrs. Greenwood and Battley, Ltd., must have much that they could tell with their machines to illustrate the lesson of all that was new since 1914, and so could Messrs. Manlove, Alliott and Co., Ltd., but they did not do so. Mr. Flockton of the latter firm gave us an excellent paper on the subject, so did Mr. Bellwood of Messrs. Rose, Downs, and Mr. Pooley of "Scotts." We understand that *Margarine* will publish these papers as fully as possible. We, unfortunately, have not the space to do so. Mr. Flockton, of course, also contributed an article on "The Production and Refining of Edible Oils" to the Exhibition Guide.

We now have two first-class makers of fibre machinery, Messrs. Robey of Lincoln, and Marshall, Sons and Co. of Gainsboro. We hope both will appear at the next exhibition, as well as Messrs. Hollings and Guest and Shirtliffe Bros. with those necessary adjuncts on a fibre estate, the power presses. Whilst meditating on these omissions, we found ourselves examining the exhibits on

THE VENESTA STAND,

especially their pattern 210 rubber chest. We had heard of this down in the City, and there it was to handle and examine. Fitted with interior battens at the top and bottom, these receptacles are strong and rigid. All the wood is planed so there are no splinters, and the whole case, including the lid, is so fixed that no nails are driven into the contents to harm them and to be in the way when emptying the boxes for "market." Ship in Venesta cases, we were told, tea, rubber, or anything you like, and you will save possibly 50 per cent. in weight of package and 10 to 15 per cent. in measurement. We have no doubt this is correct.

And with that we will conclude this account of our wanderings at the (1921) Fifth International Exhibition of Rubber and Tropical Products.

Vegetable Oil Notes.

WHERE ARE THE FOOD INSPECTORS AND PUBLIC ANALYSTS?

In pre-war days our rates and taxes went partly to keep that *rara avis*, a necessary official, whose duty it was to see that we got value for our money when purchasing food-stuffs. It is claimed that such an official still exists, but we cannot believe it, for if he does, why are grocers allowed to sell us water thickened with fat and call the mixture lard? When

are the shops to be forced to sell the real article, or else label the compound with its water content—50 per cent., 80 per cent., 90 per cent., or whatever it may be—so that the housewife can know how little grease and how much water she is really putting in her pies and puddings? Quite apart from the low standard of honesty in the shops that non-attention to such matters has encouraged and is still doing, it is time that both those who have high-class food-stuffs to sell, as well as those who wish to buy them, should be protected from the war-time profiteer, who still seems to flourish, some say more so since the Armistice than he did whilst the war was on.

A BY-PRODUCT OF COCONUT SHELLS.

A remarkable discovery, which should prove of considerable commercial value, is now announced from Ceylon, reports the *Indian Planters' Gazette* of June 11th, whereby two valuable and important by-products can be obtained from coconut-shell. It is stated that, whilst retaining the usefulness of the shell as fuel, it is possible to obtain a valuable tar, non-corrosive and antiseptic and also creosote—a vegetable substitute for the mineral acetic acid. The tar, if used on fences, walls, foundations, &c., will preserve them from the elements, and also—perhaps especially—from white ants, and in that case should prove effective and cheap.

With the creosote, it is claimed, we have a first-class substitute for acetic acid, one too that will do away with the smoke-house. Surely such a statement confirms the views we expressed last month, when we claimed that there is a marked tendency for Eastern planters to discuss and try processes for curing their rubber that will turn it out more on the lines of the Brazilian hard fine.

The estimated yield of creosote is about 150 gallons to the ton of shell. Several thousand gallons of creosote were extracted and sold in Ceylon before the war, which caused the work to remain in abeyance. Now efforts are being made to interest coconut men in the discovery and to make them realize the vast possibilities of the industry. Incidentally we are told that a fine coconut estate in the Marawilla district of Ceylon, some 129 acres in extent, in full bearing, changed hands at Rs. 220,000, or about Rs. 1,750 per acre. At Rs. 15 to the £ sterling this would make £116 per acre, against Rs. 1,528 or £102 an acre for 72 acres in the Negombo district of Ceylon.

A NATIVE DE-PERICARPING (PALM-FRUIT) MACHINE.

Some years ago a native named Phillips took out a patent for a cheaply constructed hand-power machine for separating the pericarp from the fruit of the oil-palm. Mr. R. A. Bellwood, of Messrs. Rose, Downs and Thompson, Ltd., told us at the Royal Agricultural Hall, in June, and about fourteen of these machines at the time were sent to Lagos. Phillips's idea was that the natives would be able to buy a cheap light machine which could be carried out into the forest, where they would be able to separate the pericarp from the fruit on the spot whilst quite fresh. Doing so would yield, he rightly argued, a better class of oil.

This machine consists primarily of a cast iron fixed circular barrel with a bottom perforated plate running the whole length of the machine, and an open top which is closed by a small water tank when at work. A centre shaft provided with a large number of beaters is revolved by hand; this causes the beaters to drive the fruit against each other, whereby the fleshy pericarp is rubbed off. Water is supplied to the fruits from a perforated pipe, controlled by a small valve fixed in the water supply tank. The oil and water escape through the perforations in the bottom. When the work has been completed, the perforated sliding bottom is withdrawn and the whole mass dropped into a tray below, the liquid portion draining through a gauze into a suitable receptacle. In some places up-to-date mills have been established in close proximity to the palms, natives being employed to gather the fruits and bring them in for (practically immediate) treatment.

AN OIL-FRUIT PLUCKING MACHINE.

Later on in his paper, which unfortunately we cannot publish in full, Mr. Bellwood went on to say: "One very important addition to up-to-date oil-palm products machinery is the fruit-plucking machine. The bunch of fruit is divided into three or four parts and fed to this machine, which consists of a screen and pulverizing drum, followed by a sorting screen. If there should be any loose single fruits these are separated by the screen, the remainder falling into the pulverizing drum, which loosens the fruits from the fibre, fruits and fibre falling together on to a sorting screen below, where the portions of empty fruit heads are expelled. The fruit and loose fibres then ascend by an elevator to a sorting cylinder, where the fruit is separated from the fibre and rapidly delivered by another elevator into the upper of two cooking kettles, where it receives a partial cooking, followed by a further one in the lower kettle. From the latter the contents are delivered by means of a spout into the depericarping machine. This loosens the flesh from the nuts and drives it out of the machine along with any oil into a steam-jacketed conveyor below. The nuts with any flesh which may be still adhering to them are passed through a special screen for further treatment, and when properly cleaned are sent into the store. The flesh and oil, meanwhile, are delivered by means of a steam-jacketed conveyor to a centrifugal machine, which separates any loose oil from the flesh—and the task is ended so far.

WRITE TO HULL FOR A COPY OF THE PAPER.

And that is all we can say. The subsequent treatment of the oil and of the kernels takes too long for us to do justice to the subject, but the illustrations we saw of the appliances to do the work will, we feel sure, be extremely interesting to our readers in Sumatra and the East, as well as in Brazil or West Africa, who are interested in oil-palms. Those who wish to know more should write to Mr. R. A. Bellwood, c/o Messrs. Rose, Downs and Thompson, Ltd., The Old Foundry, Hull, for a full report of this interesting paper, which also discusses copra-breakers, coconut, ground-nuts and other vegetable-oil extraction as well

LACK OF VEGETABLES AND GREEN FOOD MEANS MORE DEMAND FOR CACAO AND OIL-CAKE.

Mr. J. H. Batty, as chairman of the African and Eastern Corporation, who is much interested in vegetable-oils and raw cocoa out West Africa way, as well as in manufactured cocoa, in the shape of Messrs. A. J. Caley and Co., Ltd., of Norwich (like Messrs. Lever Bros., Ltd., who have absorbed the Havinden chocolate-making concern), suggested at their meeting the other day that the lack of vegetables owing to the drought should increase the sale of chocolates. We know it is doing so around us, especially with sugar-sweets at the present retail prices—3s. to 4s. per lb. Other reports speak of the demand for oil-cake as cattle feed because of the lack of fodder, and this, they explain, is why copra nearly touched £40 per ton on August 4th and 5th.

This being so, to what price may chocolate and oil-cake go if the Japanese contention prove correct that SILVER CAN BE OBTAINED FROM VEGETABLE MATTER?

Will there be any vegetables left for man or green fodder for cattle? Let us discuss the seriousness of such a prospect, we will not yet say, such a possibility.

All the same, we are told by the *Journal* of the Japanese Chamber of Commerce at Yokohama that the scientific world in Japan is confronted with a problem in the discovery of an alleged method of extracting silver from vegetables and animals, for, according to Mr. Tatsuzo Hatori, a farmer in Saidama Prefecture, to whom the discovery is credited, all matter that exists under the sun contains more or less silver. Mr. Hatori discovered the method of extracting silver from vegetable some years ago, and, needless to say, when the news of his discovery spread, the people refused to put belief in the report. The matter, however, was formally introduced to the scientific world by Dr. Kawamura and Dr. Maruzawa of the Kyushu Imperial University, when they read their report on the method discovered by Mr. Hatori, in the course of which they, after referring to the existence of many a strange thing which cannot be explained by science, declared that Mr. Hatori's method is in the group of things which science cannot explain. This sounds a little ambiguous, but as Dr. Maruzawa has signified his intention of devoting ten years to the study of the process, which it is said it took Mr. Hatori approximately forty-five years to perfect, we can but feel that this talented professor considers there is something in the discovery. Meanwhile, is it due to Mr. Tatsuzo Hatori or the drought that the price of cabbages around London has suddenly become so high?

THE FUTURE OF VEGETABLE OILS.

"A notable point with regard to the manufacture and supply of edible oils during the past few years," Mr. B. P. Flockton of Messrs. Manlove, Alliott and Co., Ltd., told us in the paper on "Seeds and Nuts and their Oil Content" that he read before the Oil Section of the Rubber and Tropical Exhibition Conference, "has been the general increase in their production at the source of supply, and my impression is that growers of edible nuts and seeds will, in the future, interest themselves still more in the actual

production of the oil from these seeds. Instead of exporting the seed to Europe or America for treatment, they will extract at least the crude oil on the spot, but . . . There is one point in this connection which must not be lost sight of, and this is the tendency for crude oil to deteriorate in quality by oxidation and increase in fatty acids. Consequently any grower who is contemplating the installation of an oil-producing plant should consider seriously the desirability of adding the necessary machinery for refining and deodorizing the oil before placing it on the market. Even small producers might reasonably consider the installation of a neutralizing plant to enable the oil to arrive at its destination without any considerable fatty-acid content."

FROM SEED TO MEAL.

"The reduction of the seed to meal is generally done in two stages," Mr. Flockton went on to say: "and the type of machine required for this purpose varies considerably in accordance with the size of the nut being dealt with. Copra, being in pieces of considerable sizes, requires reducing to a greater extent than ground-nuts or palm-kernels, &c., consequently it is usual to pass this through two sets of preliminary rolls, each of large size, with two pairs of grooved rolls having varying sizes of grooves. The first pair are very coarse, the second somewhat finer, and so on until the final or fourth pair of rolls deliver the copra reduced to minute pieces for its final pressure.

"Against this, palm-kernels may be reduced in three stages, consequently the rolls for their treatment may be built up in one machine. The rolls in this case are similarly grooved, the grooves being suitably pitched to obtain an even degree of fineness to that previously described.

THE CRUSHING OF GROUND-NUTS.

"Ground-nuts are usually pressed twice owing to the fact that ground-nut meal when heated becomes almost fluid in consistency because of the lack of fibre. It is therefore advisable to break the kernels slightly before pressing, for which purpose a set of single rolls suffice. If it is desired to crush and press the nuts without decortication or the removal of the shell, then the triple reduction rolls would be necessary and once pressing would suffice.

"Naturally, twice pressing materially reduces output. Consequently of late years many endeavours have been made, with varying success, to find a method whereby this could be avoided. At the present time many crushers of ground-nuts are returning half their cake to be mixed with the incoming supply of ground-nut kernels, the whole of which passes through the reduction rolls, and thus avoids the necessity for twice pressing, but even this method greatly reduces the output of a plant when compared with that obtained when treating copra."

PALM-OIL AS FUEL FOR ENGINES.

In the September issue we shall include an article, specially written for us in Belgium, on the "Drott" engine, which has been so successfully worked with palm-oil as fuel, showing the advantages claimed for it on the results of the trials so recently made.

THE PAPERS ON OILS AT THE RECENT CONFERENCE TO BE PUBLISHED.

We are informed that the following is a list of the papers which will appear in the *Oils and Fats Record* (known also as *Margarine*, 45 and 46, Avenue Chambers, Vernon Place, London, W.C.1, subscription 20s. a year), together with the months in which they are expected to appear.

August.—"Economic Conditions in the Philippine Islands," by Fidel A. Reyes.

September.—"Cultivation of Oil Palms on the East Coast of Sumatra," by Dr. Rutgers.

October.—"Cultivation of Oil Palms in the Belgian Congo," by Edmond Leplae.

November.—"Results of Transporting Oil Palm Fruit from West Africa and the Storage of the same in England," by Paul Tingey.

December.—"Solvent Extraction for Vegetable Oils," by H. J. Pooley, of Messrs. Scotts, Ltd.

January, 1922. "Production and Refining of Edible Oils," by B. P. Flockton, of Messrs. Manlove, Alliott and Co., Ltd.

February.—"Machinery Employed in the Vegetable Oil Industry," by R. A. Bellwood, of Messrs. Rose, Downs and Thompson, Ltd.

March.—"The Amazon and its Vegetable Oils," by E. W. S. Ventress.

LONDON PRICES.

(Continued on p. 124.)

Bats.

THERE is a considerable prejudice against bats, but like most things this mammal has distinct advantages, and we remember away back in 1916 that Mr. Alvin Cox, the Director of the Bureau of Science in the Philippines, when discussing the industrial possibilities of those islands, included bats, for he told us that many insects fly only at night. This habit may have been developed because of the danger of day-time flight. There are some birds that eat night-flying insects, but they are few. Fortunately certain small mammals, especially bats, have acquired the power of flight, and these are busy when most of the birds are asleep. The large fruit bats are not known to be of any benefit to man, but the very small bats feed exclusively on mosquitoes, moths, and other night-flying insects. These animals spend the day in caves, hollow trees, cracks in walls, and similar hollows. Many thousands of bats may live in one cave. From such a place, if long occupied, actually tons of guano can be removed. Here is an animal that destroys one of man's worst enemies, the mosquito, and produces therefrom one of the most useful products.

In Texas, colonies of bats have been induced to move into especially constructed roosts in malarial districts, with the result that these districts are now healthful and perfectly free from mosquitoes. Since this is so, it is highly desirable to build one of these bat-roosts in mosquito-infested localities in the Philippine Islands or elsewhere as an experiment, and the sooner the better for many centres and their inhabitants.



[Photo by Swaine.]

Tropical Life "Friend."—No. 194.

ALGERNON E. ASPINALL, C.M.G.

Secretary, The West India Committee.

It was with great regret that, owing to circumstances over which we had no control, we were unable to be present at the banquet given by the West India Committee (which came into being somewhere in the middle of the eighteenth century) to the Prince of Wales, whose remarks on that occasion concerning an Agricultural College for the West Indies, we refer to elsewhere.

"Our Friend" this month, it will be remembered, was Hon. Secretary to the Committee appointed to consider the desirability of establishing such a college, which Committee (as reported in our issue for September, 1920, p. 137, where we reviewed the history of the movement from its start) not only recommended that the college should be built, but also suggested that the island of Trinidad should enjoy the privilege of having it in their midst. It was partly for this reason, since H.R.H. commends the college so strongly to our attention and urges us to support it, that we have chosen the honorary secretary of that important committee as "Our Friend" this month. How many committees Mr. Aspinall has sat on as a member, been attached to as honorary secretary, or given evidence before as one of our leading authorities on Empire development work we cannot say. As a rule, such help gives much work and receives but scant appreciation; all the same, the Empire-builder sometimes scores, for when approval does come his way its quality makes up for the quantity that others seem to prefer.

"Having been brought up as a Naval cadet the

Prince of Wales told the three hundred guests that faced him at the banquet, "I used to be taught—or they used to try and teach me—a good deal of naval history. (Laughter.) I did learn a little, and I know the tremendously big part that the West Indies and the Caribbean Sea played in the making of our great Empire. I see Mr. Aspinall sitting at the table. (Cheers.) The splendid book that he wrote, "West Indian Tales of Old," taught me a great deal as well, I can assure you, and, read on the spot, did a great deal to make me realize the wonderful romance that still pervades those waters. By the way, I may tell you that it is entirely owing to this gentleman's book that I turned out one morning at an unearthly hour, about four o'clock, to see the Diamond Rock of Martinique, which otherwise I would not have seen." (Laughter and Cheers.)

With Sir Edward Davson, who appeared on this page in January, 1920, as father of the Associated Chambers of Commerce of the British West Indies and on account of the work he has done with or at the same time as the Secretary of the West India Committee, "Our Friend" often reminds us of Castor and Pollux, leading on those who have been and still are fighting so hard to enable the West Indies to come more fully into their own. Some lengthy battles have certainly been fought over this in the past, and one cannot help feeling that more may yet have to follow; if so, may we long be fortunate enough to have the aid and direction of these two champions, coupled with the influence and experience that are behind them.

As the Prince of Wales found in "West Indian Tales of Old," there are both romance and information in all Mr. Aspinall's books. This is also the case in the series of articles that are now appearing from his pen in the West India Committee's Circular, entitled "The West Indies Re-visited." All deserve careful study. We know his "Guide to the West Indies" pretty well by heart; the knowledge of the psychology of the many races that go to build up the population of the West Indian Islands, which such a book proves the author to possess, offers one a key to the puzzle of how he gets through all the work he does, and does it so well.

People are apt to smile at the word "psychology." They consider it pedantic. Give it whatever name you like, whims and fancies, moods and "tenses," the subject and its study remains the same. It came to the front to perfection (as a successful effort on the part of "Our Friend") when he "handled" the West Indian Contingent that flowed over here to do their bit. That they, so new to it all, achieved so much was due, as many told us, to Mr. Aspinall and the help and hospitality of the Committee and their friends. No wonder, therefore, TROPICAL LIFE also wishes to hail him as "Our Friend" as well.

We still have to see the Agricultural College in the West Indies in being and at work. After the way Mr. Aspinall helped to put the West India Committee on a sound and lasting basis, we hope he will be good enough to work his magic somewhere or on someone and so get the college in working order with an assured income, as he seems to have done with the Committee, whose membership, we believe, runs into thousands instead of hundreds, as was the case in 1898 when

Business Notices.

1.—The address of TROPICAL LIFE is Messrs. BALE, SONS AND DANIELSSON, Ltd., 83-91, Great Titchfield Street, London, W.

2.—All literary communications should be addressed to the Editor, and accompanied by the necessary stamps for their return if not accepted.

3.—All business communications and payments, either for subscriptions or advertisements, should be sent to the Publishers of TROPICAL LIFE. Cheques to be crossed The Union-of London and Smiths Bank, Ltd.

4.—The Subscription, which is Twenty Shillings per annum, may commence at any time, and is payable in advance. Life Subscription, £10.

5.—The Advertisement Department is at 5, Great Tower Street, E.C., where all inquiries respecting advertisements, charges, &c., should be addressed c/o the Manager of the Department. At the same time will advertisers kindly note that all copy and blocks for advertisements must be sent to 5, Great Tower Street, E.C., before the thirteenth of each month, failing which, insertion of same in current month cannot be guaranteed.

6.—The Publishers reserve the right of refusing any advertisement, or the matter or "copy" sent in for any advertisement. They would also be glad if advertisers would refrain from using the "powerful" or extra heavy type that some adopt at times. Doing so renders the paper unsightly, and is unfair to the other advertisers as well as to ourselves. If all used such type, no one would benefit; to allow some to do so and not others, would be unfair.

7.—Advertisers are only entitled to three changes of matter in the year of twelve issues, unless (1) they send electros for insertion, or (2) are willing to pay for the cost of setting up the advertisement. Owing to present high cost of composition and printing work we cannot depart from this rule.

8.—Changes of address should be promptly notified.

9.—Non-receipt of copies of the Journal should be notified to the Publishers.

10.—The Journal will be issued on or about the twentieth of the month.

The Managing Director and Editor of "Tropical Life" will be pleased to consider the printing and publishing of useful technical works on Tropical Agriculture, Medicine, or other subjects dealing with the development of our Colonies and the Tropics generally, as well as similar books dealing with Russia, Japan and the East, whether the books are to be published in English or other languages.

Tropical Life.

AUGUST, 1921.

The Agricultural College for the West Indies.

"IT WILL BE A TREMENDOUS HELP FOR THE WEST INDIES," SAYS THE PRINCE OF WALES.

THERE may be some who imagine that the project to establish an agricultural College in the British West Indies is no nearer becoming a fact than in the case of the one which Ceylon seemed likely to raise when the war started. With regard to the West Indian scheme, however, considerable progress has been made, and a recent reference to it by the Prince of Wales at the banquet given in his honour by the West India Committee must surely hurry matters on to a speedy completion.

"There is one point I should like to mention," H.R.H. told those present, "and that is the Agricultural College which it is proposed to establish at Trinidad. When I was in Barbados just over a year ago people were having a fairly good time, but I am afraid that, with the depression since then, they are not having such a good time now. My great hope is

that better times are coming along soon, not only in the West Indies, but everywhere. (Cheers.) Everybody has helped tremendously with this Agricultural College, and come up to the scratch in a splendid way, but since the depression there has been rather a gap. I am sure you all realize what a tremendous help the Agricultural College will be to the whole of the West Indies. We must not forget that the West Indies have been the pioneers of all the Colonies in the tropics in wanting to establish an Agricultural College, so you will forgive me if I commend this College very strongly to all of you, not only to Trinidad, but to every part of the West Indies. (Cheers.) Gentlemen, I thank you very much for the kind way in which you have received me, and I hope I shall be out there again at a not too-far-distant time. (Loud cheers.)

It is to be hoped that these remarks will go home to everyone, and especially that they will reach those who are really interested in advancing the welfare and developing the resources of the Empire, and not content merely to batten on others who, having sought out new channels, offer an excellent opportunity for the less energetic (and downright idler) to attach himself to and live upon, so long as the new venture is flourishing. Such tactics are a drag to the pushful man, do harm to the hangers on, especially if they form the majority of a nation and are distinctly against rapid progress as a whole.

Meanwhile we have since been glad to hear from a reliable source that progress is being made with the college. The Memorandum and Articles of Association should be ready by now, and then the governing body has to be nominated. This done, meetings can be held to set the machinery going. We hope these meetings will take place early in October at latest. Sir Francis Watts is, or was, on this side. We trust he will be here when the governing body is elected, as no one could quite fill his place in making the preliminary arrangements. He is one of the best men to be present if this, the West Indian College, is to be discussed, and we want to have the best on such an occasion. This is why we are anxious to ascertain what Sir Francis Watts is doing now and where he will be when those preliminary meetings are called.

At the same time, we trust that the Colonial Office will not allow the wings of the Imperial Department of Agriculture over the West Indies to be clipped just when they want to be developed so as to carry the bigger burdens that the post-war development of those islands are bringing into being. The necessity of cutting down unnecessary expenditure on *this* side requires only the surplus officials and staffs to be dispensed with, it does not and must not mean the lopping off of important branches of Imperial development work overseas, as some suggest in order that their pay—be their services necessary or otherwise—shall not suffer. With the present momentary depression, there is more work than ever for the Imperial Department to do in anticipation of the boom later on when the world, having settled down, will require all the tropical produce it needs and more.

Feeding Russia, or China, as well as large areas in Europe out of charity cannot continue indefinitely. Sooner or later these areas will have to right them-

selves. China will, we trust, soon be righted. When they do, then it will be realized how necessary it is to strengthen and widen the scope of the Agricultural Departments overseas, not to curtail them.

Once the Agricultural Colleges in the British tropics are established, then boys and the parents of boys, willing to strike out on their own account, will be able to see clearly the road to success in the profession of Empire development. Fathers can then launch their sons along it without that fear of the unknown and uncertainty which exists even to-day, and which overcame the desire of most of us to go abroad in the past. With such a message from our future King, no one with any ambition can hold back . . . when the college or colleges are established.

Mr. Robert Whympers discusses the Tastes of the Consumers of Cocoa and Chocolate.

LAST month we gave some notes from Mr. Knapp's paper, read before the Cacao Conference in June, now we will try and do the same with Mr. Whympers's, who, as author of our leading book on the chemistry and manufacture of cocoa and chocolate, cannot be passed by by any planter or exporter really interested in his work. We do not agree with all Mr. Whympers's suggestions that the manufacturers generally are working or willing to push the consumption of choice growths. Still, everyone is entitled to his or her views, and the following are Mr. Whympers's, so are worthy of careful consideration.

If any text at all had been taken it must have been *De gustibus non est disputandum*, for the lecturer dealt principally with the tastes and fancies of the cocoa-drinking, chocolate-eating public about the likes and dislikes of which there is no disputing.

ARE PLANTERS ANXIOUS TO PUSH THE SALE OF CHOCOLATE MADE FROM CHOICE GROWTHS?

First of all, we were told, it was a mistaken notion to imagine that the cocoa and chocolate maker did not consider his public nor endeavoured to provide it with the best possible article. This idea seems to have been prevalent in the minds of some planters, who have often of late bewailed the fact that there is a steady and rapid decline in the demand for the highest quality of raw cacao. The blame is usually put upon the manufacturers by the planters, who are inclined to claim that they (the manufacturers) must be ignorant of the fine qualities of the higher grades of cacao. Also, there is an underlying sentiment that the manufacturer considers his profits more than the public.*

Without whitewashing the manufacturer, the lecturer proceeded to dissect the reasons why there was a decrease in the demand for the higher grades of cacao, and then dived into the question of the yield of nibs from different varieties of beans. The public taste was also considered, and chocolate-eaters were divided into three classes, each of which had some distinct bearing upon the demand for different chocolate confections.

* Or than the pride and pleasure of turning out a perfect article as in the case of a *chef* or artist.—ED., T.L.

MILK CHOCOLATE THE "CUCKOO" OF THE FAMILY CIRCLE.

Speaking firstly of the general trend of the trade, Mr. Whympers showed how the demand for coarsely ground, plain chocolate had largely given way, firstly, to milk chocolate, and then again a certain steady demand for smooth, fatty chocolate, whilst milk chocolate still maintained the greater popularity. Milk chocolate is a confection to be classed with caramels, and the transfer of the affection of the chocolate-eating public to milk chocolate accounts to a very large extent for the falling off in the demand by the manufacturer for the highest grades of cacao. To the real chocolate-lover, milk chocolate is a good thing spoiled, and the delicacy of the "cocoa" flavour of even the highest grade of bean is marked by the cloying quality of the milk solids. As a confection milk chocolate is delightful; as a chocolate it is a poor thing.

So far as "return" or "yield of nibs" (after roasting) to the manufacturer is concerned, there is very little advantage one way or the other in employing the highest over the lowest grade of beans, provided the sample is even in size and sufficiently well fermented to enable the manufacturer to use the beans without rejecting any great quantity. The price charged and paid for the raw cacao is often no indication of the "yield" of the subsequent "roast" to the manufacturer, who must rely upon his own tests and knowledge. At the same time more often than not the price offers an indication of the qualities of the beans, such as *aroma*, which is dependent on the freedom of the bean from mouldiness and on the degree of its fermentation, as well as upon the plant stock and country of origin of the cacao; and *mellowness*, which arises only in well-fermented and well-stored cacao. To the manufacturer, therefore, the questions of "claying," "washing," "dancing," &c., are comparatively insignificant to-day, so far as "yield" is concerned, and, except in so far as they indicate the quality of the underlying nibs to his experienced eye and palate, these are matters of indifference as effecting directly his profits.

CLAYING AND QUALITY.

In earlier times "claying" was an indication that some care had been expended in preparation of the cacao; to-day it may be merely a mask to hide inferior quality or damaged beans. The manufacturer of old knew that "clayed" cacao bore the hall-mark of quality; to-day he is frankly suspicious of what it may be hiding. All that the manufacturer asks for is clean, well-fermented cacao, and he is quite indifferent how the planter obtains this result. If all cacaos, whether of Criollo or Forestero origin, whether grown in Java, Ceylon, Bahia or West Africa, were of this nature, the manufacturer would be content, as then he would only have the task of selecting the cacao by its aroma for any particular product or recipe that he might require to manufacture.

THE PUBLIC'S PALATE.

Another question considered was: "Does the public know whether a chocolate is made from high-grade or low-grade cacao, or does it eat chocolate just because it likes it?" Arising out of this question

arose another, needless to say: "Does the finest cacao provide for the public a chocolate more appreciated than one from a low-grade cacao?"

To the first question the answer was "No; if the chocolate is palatable it is appreciated,* and even a flavour foreign to cacao when added to chocolate may appeal more than the straight natural cacao aroma itself." In elaboration of this answer, Mr. Whympster divided the chocolate-eaters into three classes: (1) Connoisseurs; (2) children; (3) the non-discriminating luxury purchasers, and, further, pointed out that there was a yet still larger section of "candy" eaters who consumed vast quantities of fancy chocolates which he had no intention of considering in the present lecture, as the chocolate played the least important part of all the components. The eye was pleased by the chocolate covering and pretty decoration, but the palate, so far as the chocolate was concerned, was ruined by the centres of the confections, which usually consisted of highly perfumed creams and other strong tasting sweetmeats.

CONNOISSEURS SAID TO BE OF NO IMPORTANCE.

Touching upon each class individually, Mr. Whympster spoke of the connoisseur as a comparatively unimportant asset to the manufacturer. Clearly it was pleasant to think that one's own pet brand was appreciated by the man who knew good chocolate, but his appreciation did not pay the wages of a large factory nor the overhead charges. To the connoisseur class must perhaps be added the young lady who follows the fashion: "So-and-so's chocolate is the best. Mrs. Brown told me only last week that she saw it made, and all the workmen were in such clean overalls, and such a nice young man showed her over the factory!" Such is the power of personal "woman to woman" advertisement, which is just as potent when properly organized as public posters and press puffs. But in any case this class is fairly steady in quantity, but it ebbs and flows from one or more manufacturers to others as the power of advertisement or fashion dictates. As a rule the child may be relied upon to select a good brand, provided the bar or tablet appeals to the eye as relatively large for the small sum usually at the disposal of the purchaser. It is seldom, however, that quality prevails against quantity. The third class, the luxury buyer of no great power of discrimination, is the most important of all, and includes the casual traveller who asks for a 3d. or 6d. tablet of X's chocolate, or who, when given a selection of makers, chooses X because he has heard of him in his youth or has seen his name placarded on posters. In this class too appears the young man who may by chance be driven into class 1 by his latest spasm and who, more often than not, buys chocolates in the most attractive package. Such an one certainly knows more about cigarettes and waistcoats than he does about chocolates. The picnic party, the school treat, the suddenly hungry man and woman, the frugal luncher, the godfather or uncle, and many another, each and all, go to help form the profits of the manufacturer, but hardly to benefit the pocket or prospects of the actual producers.

* We cannot confirm this statement, as we feel that so few of the public of to-day have either seen or tasted chocolate made from choice Criollo beans.—Ed., T.L.

What of the British Sugar Research Association?

ONE of our sugar-growing subscribers writes for news of the, at one time, much-talked of British Empire Sugar Research Association, and wants to know if it is at work, what it is doing, and where it is to be found. We have had to own that we can answer none of these questions. We remember, when sugar ran high in value (it is not very cheap to the householder now), considerable sums were promised, so we heard, to encourage research work, and the name of a first-class chemist with international experience was mentioned in connection with the post of Director. Except Mr. Noël Deerr, who had just left Messrs. Arbuckle's to go to India at a salary, we feel sure, much higher than one which the Research Association would be willing to give, we know of no one who could have been more suitable for such a post, but, so far as we believe, no appointment has been made.

"Did they try to scrape down the salaries?" we were asked, but could not say. "If so, it is sheer rubbish to try and do so, or to run a Research Association on any but the broadest lines. There is much ground to cover—no one can say the exact area—but money must be found if the work is to be done in such a way as to be of real use. Where is the Government? It seems to have money to burn. If brother Cotton has received £50,000, surely sugar also is worthy of a handsome donation. To do any good it must be an Empire-wide movement, and that cannot be run on 2½d. a year. Perhaps the sugar men, having made a big haul, are not troubling, but what of the general public, those factories that need sugar as a raw material? Are not they making any noise, or are they living on Cuban sugars until they can get German beet again? If no one shouts for money you cannot expect to get any. There is a Spanish proverb which, roughly translated, tells you "The baby that does not cry does not suckle." This, it seems to me, is the case with the Sugar Research Association just now. It has certainly been very quiet for some time. One fears its (financial) bottle is empty, maybe, therefore there is nothing to suck at or to cry for. But whose fault is that? Who promised to keep that bottle going?"

"Meanwhile the Cacao Research Association is doing splendid work, and as for rubber, which is suffering so much from ruinously low prices—well, it cries quite lustily at this injustice, but that has not prevented the industry from choosing excellent men to keep it going, as sugar was promised should be done, with Dr. Porritt (see "Our Friend" in June, 1920) as the Director. This body is now going out to Croydon to erect suitable laboratories and research rooms to carry on the good work. Come now, if rubber at 8d. to 10 per lb. can do all this and more, surely sugar can at least have something to suck at in its bottle as well, especially as we see quotations for 96 per cent. grade at 20s. to 22s. against 14s. or 14s. 6d. not so long ago. Where there's a will there's a way, and—where there is no will there is no progress. In 1923 the German beet-sugar output will be substantial. We should like to feel that cane-sugar is ready to fight such competition."

"Tropical Life" at the Play.

WE sat—a little over "The Edge of Beyond" (to see well) to watch the play bearing that name at the Garrick Theatre. We enjoyed it immensely. In these days of greasy-looking lotus-eaters who have fattened over the war, it is pleasant to think of a more attractive type of man and woman strenuously working (like Beauty in the play) to push the fortunes of the Empire onward and outward, and if their work also benefits the greasy ones at home—well, we cannot help it.

With the House of Commons Committee now sitting to confirm all one knew happened in the way of appalling cruelties to performing animals, one likes to feel that others share your views regarding those who ill-treat animals, and believe, as you do, that they can and do ill-treat "humans" as well. All these details in the play make one hope that this adaptation of Gertrude Page's book, "The Edge of Beyond," will stick and do well, firstly, to benefit those who provided us with a particularly pleasant and amusing evening—there's lots to laugh at all through—and secondly and mainly, because, if the play has a long and remunerative run, it will prove that the public have more good in them than one is led at times to believe, or that they seem to want you to imagine.

Miss Ruby Miller as Dinah was great, as was Miss Doris Lloyd as Joyce. The sentiments expressed by Major Egerton and Ted Burnet, especially the former, in the very artificially magnificent West-end drawing-room, when saying good-bye to Dinah, whom each wanted to marry, are in marked contrast to the flippancy that at times seems to fill the atmosphere, so far as one can judge by the surface. It is all this which makes you like the play and wish it good luck. You feel all the stronger that, in spite of the reckless tomfoolery that went on during the tragedies of the war and the anxieties of its aftermath, those around you, and especially those who have gone to The Edge of Beyond, to work out their destinies in the open are really all right. Go and see Beauty, Billy and Ugly Bug, the three irresponsibles who did so, and say if you do not agree.

A day or two later we went to see why Mr. Bouchier and Mr. Wimperis (the adapter of the play) were booed after the opening performance of "The Trump Card" at the Strand Theatre. Some say the boo-er had a grievance because the locality in which he lived was not disparaged. Whatever the cause, we found no fault with the play except that Mr. Bouchier is not in it himself and we see far too little of Miss Kyrle Bellew so far. Mr. Jack Buchanan, however, proved an entire company in himself. He is really very good. We heard that both Nelson Keys and Leslie Henson went to see the play on the boo-ing night and laughed as much at Mr. Buchanan's antics as we did.

THE leading article in our September issue will discuss Democracy and Empire Building. With the drastic changes that have taken place and are sure to come in the calibre and class of those who are to "boss" the world, at least for a time, we feel it wise to stand still and take stock of how we all, especially those in the tropics, are placed at the moment.

Vegetable Oil Notes.

(Continued from p. 119.)

LONDON PRICES.

AUG. VALUES.

COPRA PER TON—SPOT.

			London		Marseilles		Rotterdam		Hamburg
		F.M.S.	Ceylon		F.M.		Ceylon		Ceylon
		£ s.	£ s.		£ s.		£ s.		£ s.
Aug.	19	... 32 10	... 34 10	...	32 5	...	34 10	...	34 10
"	16	... 33 0	... 35 0	...	33 0	...	35 0	...	35 0
"	13	... 34 10	... 36 0	...	33 10	...	36 0	...	36 0
"	6	... 36 0	... 38 0	...	34 10	...	38 0	...	38 0
June	30	... 29 10	... 31 0	...	28 0	...	31 0	...	31 0

COCONUT OIL PER TON.

		Spot	Ceylon		Spot		Cochin
		£ s.	For shipment		£ s.		For shipment
		£ s.	£ s.		£ s.		£ s.
Aug.	19	... 55 0	... 53 0	...	71 0	...	58 0
"	16	... 55 0	... 53 15	...	71 0	...	61 0
"	13	... 56 0	... 53 10	...	71 0	...	61 0
"	6	... 56 0	... 54 0	...	71 10	...	61 0
June	30	... 56 0	... 48 0	...	73 0	...	57 10

OTHER OILS PER TON.

		Castor	Ground-nut	Palm kernel	Cotton		Linseed		Soya
		Firsts	Crude*	Crude	seed		Spot		Beans
		£ s.	£ s.	Hull	Crude		£ s.		Oriental
		£ s.	£ s.	spot	Egypt		£ s.		Barls.
Aug.	19	... 59 0	... 52 0	... 49 0	... 43 0	...	37 0	...	43 10
"	16	... 59 0	... 52 0	... 50 10	... 43 10	...	38 0	...	43 10
"	13	... 59 0	... 52 0	... 51 0	... 43 10	...	39 0	...	43 10
"	6	... 59 0	... 52 10	... 51 10	... 43 0	...	39 10	...	52 0
June	30	... 59 0	... 43 0	... 45 10	... 38 0	...	35 0	...	33 0

SEEDS PER TON.

		Linseed		Cottonseed		Castor		Ground		Soya
		Calcutta	La Plata			Bombay		Nutst		Beans
		£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	Hull		Manch.
		£ s.	£ s.	£ s.	£ s.	£ s.	£ s.	£ s.		Spot
Aug.	19	... 22 15	... 20 0	... 14 10	... 19 10	...	29 0	...	16 10	...
"	16	... 22 15	... 20 0	... 14 10	... 19 10	...	28 10	...	16 10	...
"	13	... 24 5	... 21 0	... 14 5	... 19 10	...	28 10	...	16 10	...
"	6	... 24 0	... 21 15	... 14 10	... 19 10	...	28 0	...	16 10	...
June	30	... 21 0	... 18 0	... 11 0	... 17 0	...	21 10	...	13 5	...

CAKE.

		£ s.		£ s.		£ s.		£ s.
		Linseed		Cotton		Coconut		Ground Nut†
		London Made		Lond. Egypt				
Aug.	19	... 16 10	...	11 0	...	\$E. 15 5	...	14 15
"	16	... 16 10	...	11 10	...	E. 15 5	...	14 5
"	13	... 17 0	...	11 10	...	F. 14 0	...	15 10
"	6	... 17 0	...	11 0	...	F. 14 0	...	15 10
June	30	... 14 10	...	9 15	...	{ E. 12 0 F. 9 0	...	12 0

* English crushed, naked. † Coromandel. ‡ Decorticated.
\$ E. = English. F. = Foreign.

On August 4th Ceylon copra was over £39.

A CORRESPONDENT in West Africa for July 9th, p. 635, reports, on reliable authority, that there is quite a boom in monkey skins from West Africa. The particular species is popularly known as the black monkey. His hair is long and silky, and his home the Gold Coast. Some idea of the demand for the skins may be gleaned from the fact that, whereas a year ago they were not worth much more than 1s. per skin, to-day the average price is 23s. The demand came from France in the first place, where furriers are making use of them for trimmings, cheap muffs and the like, but, it must be remembered, that it is only this particular type of skin that is asked for; other varieties probably would not fetch a shilling each.

Rubber and Cotton Notes.

WHY NOT RUBBER HELMETS FOR ICEMEN?

THE other day we had occasion to carry a lump of ice in our bare hand for—how long?—possibly not a minute, and yet, when we put the ice down, the hand ached so much that it was quite painful. Since this is so, what of the hundreds of men, and the millions of lumps of ice, that are carried on the men's shoulders against the head and—of all portions to become numb and liable to ache—the ear. Surely the results must be appalling in the aggregate, and yet how easy to remedy. Why not have a rubber helmet to go over the head, and pads, pneumatic or otherwise, over the ears? What of an Onazote pad, for instance? Surely the pain and suffering that the everlasting chill of ice near the head and ear (the wet sack cannot be sufficient) must cause icemen to suffer should make such a helmet most acceptable. What has the London R.G.A. to say on the subject?

IF RUBBER IS BAD, WHAT OF COTTON?

The American raw cotton market, according to the *Rubber Age* of New York, reached its lowest point on June 21st, when 10.50 cts. was touched. The settlement of the coal strike in the United Kingdom had not, by July 5th, improved the markets as was hoped and expected. One does not wonder at this disappointment when the high retail prices charged for cotton goods are taken into consideration. Such high prices must curtail consumption everywhere, until the United States at the end of May had about 8,300,000 on hand against an average stock of 5,000,000 bales on the corresponding date in the previous four years. Premium staple, sakel, Egyptian or Arizona Egyptian cottons seem to be having an especially lean time, their markets being stagnant owing to lack of demand and a surfeit of supplies. Have "cord" tyres, one wonders, permanently broken the demand for cotton fabrics and so added to this depression in the long staple markets even at present low prices?

The American cotton production for 1920-1921 is estimated at 13,000,000 bales, the *India Rubber World* for July tells us, with a carry-over of 5,000,000, making a supply of 18,000,000; whereas the demand is not expected to exceed 11,000,000, thus leaving a surplus of 7,000,000 bales, which, added to next season's normal production of 13,000,000, would provide a supply of 20,000,000 against a probable demand of but 12,000,000 bales. A price rise in the face of such a surplus pressing for sale is unlikely.

Cotton prices will be governed more by the world's needs and ability to pay for what she wants either in cash or its equivalent than by the stock in the U.S.A., just as the prosperity of the United States will depend largely on the settlement of the present conditions which are existing throughout the world rather than on the state of trade in America alone.

A SIGN OF THE TIMES.

One cannot help noticing how very much rubber in Brazil has dropped out of the financial world for the time. It may yet be that one day rubber will come into its own again, either owing to a home demand

to satisfy the big factories that it is hoped will spring up in Brazil, or for other reasons; meanwhile it is all the other way round at the moment.

This fact was driven home to our minds by the receipt of No. 14 of Trade Reports from South America, issued by the London and Brazilian Bank, Ltd., to July 30th, for here, under the heading of Brazil, the word rubber does not seem to be mentioned. Coffee, cotton, rice, beans, cacao are each mentioned and discussed in turn, but of Brazil's black gold there is not a word.

Meanwhile, just as we are growing used to having Senhor Epitaceo Pessoa as the President of Brazil, we are reminded of its again being necessary to take steps to elect a new President for the 1922-26 term. Dr. Arthur da Silva Bernardes (Governor of Minas Geraes) is spoken of as the new President and Dr. Urbano Araujo (Governor of Maranhao) as Vice-President.

ARE MODERN GOVERNMENTS KILLING OUT THE SMALLER MEN?

Those who are mostly feeling the pinch in these days, both with cotton and rubber production, are the small private estate owners. The unwarrantable increase in overhead charges to meet the cost of wasteful expenditure and overpaid workers everywhere, except perhaps in Germany, continues to reduce the spending capacity of the masses, and must do so until a reversal of such a policy is brought about by these same masses voting against such measures. Unfortunately, organized labour which includes those in Government employ, and especially the post office and telephone departments, naturally want the present level of wages and waste to continue, whilst the giant firms whose huge turnover can stand these charges, and whose trade flourishes because small competitors are being killed out on the one hand, and producers and sellers of raw materials forced to realize at ruinously low prices on the other, all vote solid for it. Prices of produce abroad, therefore, cannot and will not reach a fair level until the unfair treatment of the masses at consuming centres ceases to exist. The only people who have won over the war seem to be those who, in theory, are said to have lost it. It is a strange world, but producers abroad and those who are working to extend the trade of the Empire and help fatten the wasters on this side must realize that it is so, or else they cannot form a correct opinion of why the price of their crops continues to be so low, or when a turn can be looked for. This we feel is especially the case with sugar, cotton and rubber. When 96 per cent. Cuban sugar in bond on this side stood at 14s. and a little over per cwt., toffee sweets in the shops were at 3s. and 4s. per lb.; such a contrast in prices cannot be justified, and, so far as we can judge, retail prices for cotton and rubber goods are as bad or worse, especially cotton. No wonder, therefore, that stocks run up and prices run down. The world cannot flourish without the competition of the small man. The small man cannot flourish with taxes and expenses at their present level—and there you are. This is why so many being out of the swim cannot get work, and why bankruptcy

threatens the Empire workers abroad and, some claim, even the United Kingdom at home. The shame is that not only all this should not be, but that it is altogether unnecessary.

Coming now to prices,

PRICES AND STOCKS.

The week ending August 11th was a very dull one and closed with a lower tendency, report Messrs. Lloyd, Matheson and Carritt. Inquiries for off grades were quite good (at current market values), and with very little first-hand rubber offering, prices hardened sufficiently to reduce the discount between these grades and standard qualities. There was another drop in value of fine qualities with less demand for off crêpes, with but little offering at the lower level. A slight recovery left prices as follows on August 18th.

Spot quotations—				1921		1921		1921		1920	
				Aug. 18th.		11th.		4th.		19th.	
				s.	d.	s.	d.	s.	d.	s.	d.
Smoked sheet (F.A.Q.)				...	0 8	...	0 8½	...	0 8½	...	1 9¾
Crêpe (standard quality)				...	0 8¼	...	0 8¾	...	0 9½	...	1 11
Parà ... ..				...	1 0¼	...	1 0	...	0 11½	...	1 9½
				Aug. 11th.		Aug. 18th.					
Forward positions—				Smoked Sheet		Crepe		Smoked Sheet		Crepe	
				s.	d.	s.	d.	s.	d.	s.	d.
1921				0	8½	0	8¾	0	8½	0	8¾
,,				0	8¾	0	9	0	8½	0	8½
,,				0	9¾	0	9¾	0	8¾	0	9
Stocks—				Tons							
Plantation, London } .. Aug. 13th, 1921,				72,676				... Aug. 16th, 1920, 27,002			
Parà, Liver-pool } ... ,, 1st, ,,				800				... ,, 1st ,, 1,000			
				<hr/> Total 73,476				<hr/> Total 28,002			

Trade, Politics and Finance.

A FURTHER reduction, we were pleased to see, has been reported in the dock and wharf charges in London, as notice was given on August 1st that the increase on warehouse charges and rent, which had already been reduced from 150 per cent. to 125 per cent. on February 7th last, was further lowered to 100 per cent. increase only on goods ex ships which broke cargo on and after August 1st. For this small mercy all will be thankful—and clamour for more.

We have been studying the Trade Report, No. 14, of the London and Brazilian Bank, Ltd., dated July 30th. We are not sure that we really can fathom all it has to tell the experienced Anglo-Latin American financier, but can fully appreciate the reason of Brazil's present depression when we are reminded that the milreis touched 6¾d. at the end of June and is now at no height to be pleased over. The result of this fall in exchange, on the top of lower prices, is clearly shown in the following unassuming yet striking table:—

EXPORTS OF COFFEE FROM BRAZIL.

Jan.-April	Bags	Value
1919	5,374,000	= £24,960,000
1920	3,888,000	= 24,131,000
1921	4,216,000	= 10,080,000

Up to date—April 30th—therefore, with 4,216,000 bags exported, at least half the estimate crop of 9,000,000 bags had been disposed of at a fall in value that should make even the Sphinx cry out in anguish.

Sugar is quiet, but still at 22s. 6d. for 96 per cent. August delivery, or more than 50 per cent. above its lowest point not so long back. The sharp and erratic movements that have been, possibly still are, taking place in exchanges, are enough to make or break any market. If people, looking ahead, have come to their senses over sugar (even if unaware of the fact) one can but hope that they will do the same with rubber, cotton, &c.

Coffee prices include bold common greyish Mysore of 114s., and middling up to 107s. Fine colory Nairobi went at 67s. 6d., greyish up to 71s. 6d., good colory 103s., peaberry as high as 119s. Fine ordinary Uganda touched 63s., greyish 71s., peaberry 85s. 6d. Middling greyish Kilimanjaro up to 70s. 6d. Good bold palish Colombian fetched 93s. 6d. to 94s., and rough greenish 80s.

Cotton is still below 9d. lb., this side of Christmas rising to just above by May. Sakel Egyptian stood at 15¼d. Manila Hemp is worth about £38 for spot; New Zealand £40. Shellac is at 290s. for T.N. Orange and 285s. for A. C. Garnet. Palm Kernels are higher at £23 and a little more against £21 in July and £19 in June. This month, as can be seen on p. 124, we discuss soya beans (as well as palm kernels) under the Vegetable Oil Notes, having arranged for an agent to advise us on same from Harbin via his London office.

Copper is worth about £69 15s. or £70, and Tin is down to £155 or £156.

May we take this opportunity to shake hands with ourselves now that two of our advertisers have—un-asked—doubled the space covered by their advertisements? First Messrs. Robert Middleton and Co. did so, beginning with our July issue, and now The Tyne-side Foundry and Engineering Co., Ltd., have followed suite, beginning with a whole and a half page in this number. Whilst thanking these supporters for the compliment they have paid our advertising section, we trust others will realize what a help it will be to their trade in the near future to do the same.

Coming to finance, the following is a comparison of the principal points in the returns of the Bank of England at the present time and during the corresponding week a year ago:—

August 13th.	1921	1920
Bank Bullion	£128,380,654	£123,067,552
Reserve of Notes	17,450,240	14,452,665
Private Securities	81,107,097	73,805,565
Notes in Circulation	127,564,270	125,527,795
Rate of Discount	5½ per cent.	7 per cent.
Price of 2½% Consols	48½	46½
Price of Bar Silver	37½d.	59¼d.

The London Cocoa Market.

BY THE EDITOR.

IN order to include some notes—far too curtailed as it is and therefore not doing the lecturer justice—of Mr. Whymper's remarks before the Cocoa Section at the June Conference, it has been necessary to cut out the gossip from these notes. If an apology is needed, we beg to offer it, but some may prefer the abbreviated article.

According to the statement of the London and Brazilian Bank, Ltd., referred to in the Trade, Politics and Finance notes, the coming Bahia cocoa crop for 1921-2 is estimated at about 1,000,000 bags of 60 kilos each, which is much the same as the 1920-21 output since recent statistics of the 1920-1 crop show exports from Bahia as 1,002,469 bags. Of the latter the principal receiving ports were:—

New York	559,578 bags
Hamburg	144,296 "
Amsterdam	58,400 "
Buenos Aires	42,135 "
Le Havre	41,524 "
Copenhagen	37,633 "
British ports	4,288 "

If not the only item of news, then the most interesting one is centred around the increased quotations for business done in Accras. The 39s. spot of a little time back is now 43s., whilst 52s. (9s. higher) is quoted for end-of-the-year deliveries. One wonders whether other growths can be valued on this basis. Why should they not be? Grenadas would then be about 65s. for fine marks delivered London, and the best Trinidads about 70s. November-January delivery. Let us hope it will turn out so, both because the money will help producers and also, perhaps even more important still, because such an increase will show that the demand generally has awakened and means to have its fill. This is what we all want to see, manufacturers as well as producers.

The correspondent to the *Confectionery Journal* wants to claim that the worm has already turned inasmuch as our deliveries for Home Consumption for July show an increase over 1920. If this increase will continue month by month, then all will go well. July was tropically hot, many were away on vacation, and it stands, as always, at the end of the half-year. These points, it might be claimed, are common for all years, but only the last can be said to be so. It was the very hot weather that took so many away in July; this was not the case in 1920. If, therefore, the turn has come and buyers are looking out for and are expecting to pay higher prices on ahead, we can only hope that there will be no turning back, taking the world as a whole. If Germany shows a 10 per cent. increase and the U.K. a 5 per cent. fall, that is still to the good, and it is to the world demand that producers must look for a time, not to the rise or fall in this or that country. No one can pretend that the promise of an increased demand in the U.K. is the cause of forward Accras being quoted 9s. above spot parcels, but it may be in anticipation of an increase in the world demand in comparison with the world supply that is causing them to be so.

Coming to the English and French figures, the first to the end of July and the latter to May 31st, they compare as follows. Board of Trade Returns, January to July:—

	Landed Tons	Del'd. H.C. Tons	Export Tons	Stock July 31st. Tons
July only, 1913	2,840	2,221	515	10,550
" " 1919	13,896	4,392	3,094	73,500
" " 1920	10,306	2,820	2,012	70,600
" " 1921	3,086	3,141	1,713	52,900
Decr. 7,220	Incr. 321	Decr. 299	Decr. 17,700	

Seven months	Landed Tons	Del'd H.C. Tons	Exported Tons
Jan. July, 1913	22,717	16,500	4,346
" " 1919	90,336	35,579	5,163
" " 1920	83,953	31,966	20,587
" " 1921	43,022	25,842	11,431
Decr. 40,931	Decr. 6,124	Decr. 9,156	

It will be seen by the above, that although our Home Consumption deliveries have fallen rather low, they are higher in comparison to our receipts than the two previous years, say (for the seven months) 37,300 tons delivered this year against 43,000 tons received, as compared with 52,600 and 84,000 in 1920, and 40,750 tons delivered and 90,300 received in 1919. Naturally our stocks have fallen, and seem likely to fall to the end of the year. It only remains to be seen what the world supply will have to offer from January-March, 1922, in comparison with the world's requirements. At present the premium of 9s. for forward deliveries on the top of 43s. for spot Accras, can be taken rather as an assurance against any possible shortness. As with cocoa, so it will be with sugar. The other day we were all crying at the mountains of sugar we had to sell which no one wished to buy, and 96 per cent. Cubans were down to nearly 14s. delivered U.K. in bond; to-day the price seems to be 22s. 6d. Would this more than 50 per cent. rise be paid if the recent over-supply of sugar was still dreaded? Does it not look, even if forward quotations are down to 18s., or but little over, that the wise men anticipate that supply and demand will run more neck and neck than they seemed likely to do two or three months ago; and as with sugar, so it is and so it will be with cocoa unless the unexpected happens.

The French returns have been running on the same lines as our own. Landings for January-May, less than half, 14,981 tons (of 1,000 kos.) against 29,532 last year. Her consumption shows, however, a far more serious falling away than our own, say 12,970 tons against 23,500 in 1920 and 17,921 in 1919, whilst her exports have run even (7,134, 7,779, 7,314). All through, however, the total deliveries in France have exceeded the landings, say: deliveries for Home use and export in all France, 20,104½ against 14,981 tons received, as compared with 31,279½ delivered and 29,532 received in 1920 and 25,236 delivered and 20,359 received in 1919. Meanwhile here are the stocks at London and Havre. They do not increase. Bordeaux's also is quite moderate, say 96,063 bags on July 31st, against 116,673 last year and 175,117 bags in 1919.

LONDON STOCK, July 13th:—	1921 Bags	1920 Bags	1919 Bags	1913 Pre-war
Trinidads	26,096	52,085	41,529	11,885
Grenadas	23,182	27,729	17,220	5,694
Other W.I.	7,725	20,671	6,811	4,433
British African	16,171	51,148	43,305	12,251
Portuguese African	969	3,048	6,499	4,067
Cameroons	1,378	1,378	3,093	2,778
Ceylon and Java	16,516	23,101	7,821	16,827
Guavaquil	60,824	81,658	15,834	13,618
Bahia and Brazil	308	217	986	374
Other foreign	23,624	43,470	10,045	9,509
Totals	176,793	304,505	153,143	81,436

It is reported that a considerable quantity of old stock, even quite unattractive and defective parcels

which sold as low as 5s. or 6s. per cwt., has been removed of late. There is still a goodly proportion of Guayaquil that should follow, but apart from this, the average quality of the present U.K. stock, although not perfect, must show an improvement to what it was at the end of March in quality as in quantity.

HAVRE, July 31st.	Stock Bags 1921	New York \$3.56 Paris Fcs. 3.71½	Stock Bags 1920	New York \$47.05 Paris Fcs. 48.75
		Value Fcs.		Value Fcs.
Pará ...	5,656	116 to 126	4,085	215 to 225
Bahia ...	26,731	100 ,, 128	51,671	195 ,, 220
Venezuela ...	21,014	128 ,, 263	26,018	240 ,, 375
Trinidads ...	27,894	120 ,, 125	57,169	220 ,, 230
Grenada & O.W.I. ...	10	100 ,, 130	10	175 ,, 200
San Thomé ...	24,945	92 ,, 128	89,633	175 ,, 220
San Domingo ...	34,412	94 ,, 104	27,879	180 ,, 200
Haiti ...	27,750	75 ,, 100	31,406	170 ,, 200
Accras ...	57,823	102 ,, 107	34,864	180 ,, 185
Guayaquils ...	10,804	135 ,, 155	6,474	280 ,, 300
Others ...	20,569	—	27,494	—
Totals	...257,608 bags		358,703 bags	

During July, Havre received only 8,768 bags, against 115,704 bags last year and 84,999 bags in 1919.

The Gold Coast exports are drawing near to those of last year. The 7,781 tons exported in June, against 4,037 in 1920, makes this year's total for the six months stand at 75,711 tons against 79,921 in 1921. Buyers, however, do not seem to foresee any surplus, and once the quality is alright, this growth is sure to be much sought after during the coming six and twelve months.

Generally speaking, the market is exactly as it was a month ago. Very little is being done and the chief

buyers—when transactions take place—are the leading makers, except, of course, for export.

There is, however, more bone in the market, and the fact that spot Accras are now at 45s. against 40s. a month ago, and forward quotations stand at 51s. against 47s., shows that holders, if not buyers, feel that the produce is in a stronger position, i.e., there is less chance of a glut than there was. If the whole truth were known as to the total transactions carried out and the prices paid, probably many would be surprised, including those who bought the cocoa. As it is one can only guess at the quantities changing hands both spot and for forward deliveries and give no particulars.

Government returns are said to be causing salaries to be lowered as living is cheaper. This we shall all welcome, not being in receipt of Government pay, but at the same time, as has already been pointed out, these Government returns must not be taken too seriously. They do not include maintenance costs in a business, and as no one can live—in our world of commerce—without his business, they do not show the rise instead of a fall in costs generally. Furthermore, the *Labour Gazette*, speaking of food, rent, clothing, fuel and light, shows that living is not cheaper but dearer, viz., 122 per cent. above the 1914 level, against 119 per cent. on July 1st last. Add to this the increased taxes, postage and 'phone charges, as well as transport by rail, passenger or goods, it must be clear to producers abroad why business drags since the public, mulcted of its earnings, cannot buy as freely as they did before the war. Cocoa products must feel this as much as any crop.

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A Monthly Journal devoted to the Interests of those living, trading, holding property, or otherwise interested in Tropical and Sub-Tropical Countries.

VOL. XVII.—No. 9.]

SEPTEMBER, 1921.

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Our Value as an Advertising Medium.

"We have just been referring to the records of our advertising returns," writes Mr. Thatcher of The Atlas Preservative Co., Ltd., "and it may interest you to learn that since May 25th last (just three months) we have received inquiries from Macassar, Antwerp, Batavia and Kajang, F.M.S., in which TROPICAL LIFE has been specially referred to. During the long number of years that we have been regularly appearing in your excellent medium, had we kept the records we are now arranging, we would have been able to furnish an interesting record of a substantial number of inquiries received through you."

Our Change of Address.

EXPRESSIONS OF SYMPATHY AND OTHERWISE OVER
THE MOVE.

HAVING got comfortably settled in the new domain for our City office, we shall be pleased to see all who wish to undergo a cure for post-lunch indigestion. The gentle and continuous exercise of mounting our stairs is a positive guarantee to cure the most obstinate cases.

Meanwhile our friends abroad, hearing for the first time of our having to leave the old premises, and knowing how loth we would be to do so, write to say how sorry they feel for us. Mr. M. T. Dawe tempers his expressions of sympathy by suggesting that a "thin out" and a "spring clean" among our bookshelves would do no harm. Whilst keeping what was essential, we certainly anticipated Mr. Dawe's idea in a most drastic fashion, much as we regretted seeing the "stuff" carted away "down East."

An old subscriber at Maracaibo, Venezuela, also wrote: "I read with genuine regret the note on p. 39 of the March number of T.L.," he said, "about the enforced giving up of the old office at 112. Fenchurch Street, where you had been so long, and where I have passed many a pleasant and profitable hour in the intervals of my residence in England between 1915 and 1921. It desolates me to realize that I cannot look forward any more to coming upon you again amidst the customary surroundings of a literary jumble, penning a leading article or dealing in your masterly style with the operations of the London cocoa market. I trust that the new quarters which you have secured will prove in every way suitable and convenient. I would rather think of you in a sequestered corner of one of those many byways of the good old City that go by the name of lane, alley

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West Indian Sugar in Venesta Cases for the Antarctic.



(Courtesy of the West India Committee Circular.)

SOME OF THE SHACKLETON SUGAR BOXES.

Some of the cases of sugar which Sir Ernest Shackleton has taken with him to the Antarctic. The sugar for the present Shackleton-Rowett expedition is packed as above, whilst the cases are inscribed "Caroni" Trinidad Sugar "Cube Sugar" and "Granulated," as the case may be. It should be remembered that the expedition has been made possible through the generosity of Mr. John G. Rowett, a member of the West India Committee. The sugar, which is of the finest quality, has been packed in 14lb. tins, and three tins in a Venesta case; an interesting combination to all interested in the development of British Industries. The cocoa and chocolate we understand has been given by Messrs. Carsons, Ltd., of Glasgow, and Shortwood (Glos.) who supplied the previous expedition with these necessities over which Sir Ernest Shackleton expressed satisfaction and delight.

or court (in Spanish *Callejon*) than as established in some up-to-date office block, equipped with express lift and every modern appurtenance—even if the stairs do wind me as they did at Fenchurch Street. Go somewhere, at any rate, pervaded by the aroma of coffee, cacao and spices, so as to bring the right atmosphere to your work."

We consider we have pretty well fallen in with our friend's wishes. By the time we have "licked the new office into shape," with the help of those who, exceeding Mr. Dawe for plain speaking, said that "112" was fast becoming a rubbish receptacle; we feel that everyone will be pleased; those who like law and order, and those who do not like extreme modern interiors. All they will have to do will be to mount the stairs.

Meanwhile—for the last time—please remember that the address of our City office is now—5, Great Tower Street, E.C.3. At present the telephone number remains unchanged as Avenue 6073, but next month we are to be switched on to the Minorities relief exchange, when we shall become Minorities 2426.

Chatter from Latin America.

COTTON IN SAO PAULO.

Writing in the *Pan-American Magazine* for March, Mr. R. de Ferrières gives us news of the cotton areas

in Sao Paulo, which were planted after the great frost of 1918 had played such havoc with the coffee. Casting around for some crop to replace the stricken coffee, the planters decided upon cotton, and their choice, we are told, has been a wise one. The soil and climate of Sao Paulo have agreed remarkably well with the cotton plant, so that to-day, judging from reports, the cotton producing industry has prospered wonderfully. So much so has this been the case, we demur at giving the figures, but here they are in black and white, an amazing result of enterprise and the refusal to give in. In 1919, the year after the great frost, the cotton crop amounted to 50,000 tons of ginned cotton, the equivalent of 200,000 bales. (In Sao Paulo, it seems, a bale equals 200 kilos or 441 lb.) The number of gins and presses used to handle this new crop and industry must have been considerable. One wonders who supplied them.

Thus it has come about that the frost which seemed so serious in 1918 has proved, through the wise handling of untoward conditions in connection with the transport, ginning, &c., a blessing in disguise by bringing about the foundation of a great and growing industry and source of new wealth to Brazil. If this can be done to help coffee, as much and more can be done to help rubber and further to attract wealth to the Republic, which needs it. Then there is a not unimportant portion of the Globe known as the British Empire. What an incentive to go ahead with our own cotton production, on the lines suggested in the March

issue (p. 41), is offered by this successful start with cotton growing in the State of Sao Paulo. Then, of course, there is Pernambuco's output, about 18,000 tons equal to about 78,000 bales (American) of 500 lb. each. This, however, although old-established, is far behind the reported output in Sao Paulo.

OCOTILLO AS A RUBBER SUBSTITUTE.

The same contemporary discusses the efforts being made to exploit and utilize the ocotillo plant as a producer of rubber substitute. Whilst the details given are interesting, one cannot help wondering how much lower the price of real rubber will have to drop before we hear the last of substitutes. With the need that exists to sell and consume every ton of true rubber that one can, it sounds almost criminal to go worrying about substitutes still. All the same, we are told that the gum of this member of the Candlewood family (known botanically as *Fouquieria splendens*) is now being exploited on a large scale, say 100 tons of the plant per day. The entire plant, except the root, is used, and each ton of "material" yields 173 lb. of gum or rubber substitute, 306 lb. charcoal, 206 lb. tar and 130 gall. of pyroligneous liquor. The "material" to be treated is obtained by taking the plants (chopped off close to the short root, which immediately starts to sprout again), hoisting them to the chute, whence they are fed to a "hog," which grinds them into small chips, and it is a ton of these chips which yields the quantities of gum, &c., mentioned above. The rubber content is 5 per cent. of the whole plant. Incidentally it has been found that ocotillo fibre is stronger even than ramie. Two tyres were made from fabric of this fibre, well frictioned with the gum, and the tyres, we are assured, are still good after runs equal to a 22,000 mileage mostly over a rough country—a record that is considered in Mexico, where the ocotillo grows, to compare favourably with Para rubber tyres. One wonders what the cost of these tyres will work out at compared with imported real-rubber ones?

THE UNITED STATES OF CENTRAL AMERICA.

The *Journal* for July of The British Chamber of Commerce at Buenos Aires calls attention to the almost total lack of notice which the public took of the not unimportant Articles of Federation recently signed in San José, Costa Rica, to bring about the union of the Republics of Guatemala, Salvador, Honduras (Spanish) and Costa Rica under one Federal Government. If anything could keep these (reputed) turbulent little Republics quiet, it should be some form of federation as the one now being carried into effect. We wish these Republics the best of luck, prosperity and increased internal and export trade development in every way. Already it is hoped that the Union will facilitate the projected railroad connections and bring about extensions of the present systems.

The full development of the United States of Central America has been retarded by misunderstandings with Nicaragua over the Chamono-Bryan treaty. Nicaragua, therefore, for the present remains outside the Union, though she is expected to enter in the near future. We trust she will.

THE BRITISH CHAMBER OF COMMERCE AT SAO PAULO.

The June issue of the *Journal* of the above Chamber gave a full account of their second annual banquet at the Automobile Club in Sao Paulo, with Mr. E. J. Macdonald in the chair, who, in his speech, explained to those present what a great help it would be to bring about greater trade and intercourse and close friendships were it possible for the commercial men of both countries to visit each other more frequently. By visiting Brazil our own countrymen become awakened to the fact that here in the "New World" is a wonderful country and people, of progressive ideals and very much more advanced than many European nations. A people appreciative of science, art, music, literature, and who also can hold their own as able administrators and business men. By visiting Great Britain, our Brazilian friends obtain an altogether truer impression of the solidity and importance of the various institutions which are at the foundation of British trade. In order to facilitate this knowledge the British Government has recently instituted annual "Industrial Fairs" on the most extensive scale the world has ever seen in London, Birmingham and Glasgow, and invitations to buyers from foreign countries are issued through the respective British Consulates. These fairs are worthy of your attention and should be visited by anyone going to England from Brazil.

Malaya and its Sugar Possibilities.

WHY NOT REVIVE THEM?

AN indignant Imperialist—i.e., Imperialist for economic development, not for land-grabbing, a man even more practical and experienced than he is indignant—has asked: Why did a writer in the *Confectionery Journal* of London recently trouble to show what the Philippines *could* produce in the sugar line, whilst we all know that Malaya has done so well in the way of sugar production in the past, and *would* do so again if given the chance? "Why not call attention to Malaya, therefore," he adds, "and give her this chance of showing what she can do now?"

Who can refuse so fair a request? Remembering all that is being done to increase the output of sugar in India, we hunted out our notes on Malaya, which place, as the authorities over there are also claiming, has been foolish enough to put all its eggs into two baskets—rubber and tin—when, like Ceylon, several industries could be expanded considerably, especially cane-sugar production and perhaps coconuts.

There is no gainsaying the fact that the wild rush to plant rubber throughout the Malay Peninsula covered up large areas of excellent cane land, but there is still plenty left for those wise enough to go out there and plant, arranging between themselves and the big houses and engineers on this side to erect up-to-date factories run on the co-operative central factory system of that most excellent pioneer of this type of factory, viz., the one in the West Indian island of Antigua. If ever there was a good time to start such a revival it is now. Present prices at con-

suming centres surely are high enough to cover mistakes if made, while later on, by the time competition with European beet on the one hand, or Cuban cane on the other, becomes severe, the industry will have found its legs and be able to hold its own. At present, with the exception of the coconut industry, which can hardly be spoken of as important, against the local rubber and tin outputs, or the coconut industries of Ceylon, Southern India, and the Philippines, every other pursuit has been ignored. Now that rubber is "sick" the mistake has been realized, but to know you have done wrong is not sufficient, it is necessary to avoid falling into the same mistake at some future date.

In his remarks on the trade of the Federated Malay States during 1920, Mr. E. Burnside, Commissioner of Trade and Customs, has some useful remarks to make in this connection, and it is to be hoped that the financial houses, as well as the brewing, confectionery and other wealthy buyers of sugar in large quantities as their raw material, will obtain a copy of this report and act upon its advice.

"A general survey of the trade statistics for the year would lead one to the conclusion that the F.M.S. was never in a more prosperous condition, but," writes Mr. Burnside, "it is well known that its prosperity has depended mainly on two industries—tin-mining and rubber-planting—and both were in grave difficulties towards the close of the year. This illustrates the danger of the financial structure of the country being built on so narrow a basis. With the partial paralysis of those industries the whole revenue of the country is endangered. Not only do export conditions shrink alarmingly, but since the purchasing power of the community is greatly impaired, the import collections decrease also, thus threatening the financial stability of the whole country."*

The Commissioner goes on to say that it is high time that capital in Malaya was diverted to other channels. Such channels may not present the tempting possibilities that tin and rubber did in the past; but they can be invested in proposals that are payable to those working them, and if the community will extend, with the help of the British consumers of sugar on a large scale, their operations in cane-sugar production and other directions, the slump in the two leading industries would be less of a catastrophe to Malaya generally, and could be faced with greater equanimity.

Figures show that sugar at present is produced in almost infinitesimal quantities over there, yet the country is suitable for sugar production on a large scale, in spite of the area covered by rubber. Even if the export of sugar is too much of a dream just yet, quite substantial outputs could be consumed locally once the introduction of the necessary plant is assured.

Given the capital and machinery, the old-time export trade of sugar from the Straits Settlements—who does not remember the sugar of Penang?—as well as from the Peninsula itself, ought not to be too much of a dream to become a reality.

The Government of the F.M.S. is evidently of such an opinion, for they have notified the public that they are prepared to consider applications for land for the cultivation of cane-sugar on the following terms:—

(1) The land shall be held under lease for fourteen years, with a right to renewal for periods of fourteen years for every acre so cultivated.

(2) No premium shall be charged.

(3) Rent shall be free for the first three years, and thereafter shall be at the rate of \$1 (= 2s. 4d.) per acre.

(4) The conditions of cultivation shall be as laid down in Section 3 of "The Country Lands (Cultivation) Enactment, 1914."

(5) Export duty on sugar produced from land so alienated shall be free from January 1st, 1922, to December 31, 1926, and thereafter shall not exceed 2½ per cent. ad valorem from January 1st, 1927, to December 31, 1931.

(6) It will be a condition of the title that a factory of sufficient capacity to deal with the crop on the area leased be erected within two years.

(7) The maximum area to be alienated to any one concessionaire will be 8,000 acres. (At two tons of sugar to the acre, and allowing that only 75 per cent. = 6,000 acres can be actually planted, this means a substantial output.—ED., T.L.)

There are other sub-conditions, but these can be ascertained either in Malaya or, we feel sure, from the Malay States Information Agency on this side (88, Cannon Street, E.C.4). We have not actually asked if this is the case, but feel sure those who apply will not be sent empty away.

Those who do not care to risk all their own money in the venture should surely be able to induce one or other of the big rubber agencies to go in with them. In these days the most economic factory to run must turn out at least 20,000 tons of sugar a year and—be it remembered—kept going at full steam during the period of crop. Divided up between four separate interests, this means 5,000 tons of sugar each, against 16,000 tons on the lines mentioned above (8,000 acres for each concessionaire), the factory to be run on joint account in the production of the cane to feed the mills. Whether or not outsiders, i.e., those who have no stake in the production of the canes to feed the mill, will be allowed to take shares can be arranged by those in charge.

Of course the world can be overdone with sugar, but that will not come yet. Speculation and clumsy handling of huge quantities, as in Cuba, may make markets go awry for a time; but let them go—do not be misled by them. Watch what is happening in the United States, the last consumer in the world to be caught napping over sugar, and yet how decidedly she has been caught. If Germany has to buy cane-sugar, and at the end of July she was inquiring the price and conditions for a million tons from Cuba, where the States are now also busy, surely it is no longer any good pretending either that Germany has all the sugar, grown on the spot, that she needs to supply her home consumption or, that needing more sugar, she has not the money to buy it. Germany, and in due course Russia and Central Europe generally, will be buyers of sugar. If Malaya is wise, or rather, if financiers and those anxious to assure their supplies of sugar are wise—preferably that produced

* May we call attention here to the reprint of our Editor's letter on p. 140 in the *London Observer*, which was written quite as much to help fill the depleted exchequers at rubber-producing centres as to benefit planters and merchants, for if you help the tax-collector you help the tax-payer.

within the Empire—they will remember Malaya, and start soon arranging to build up a sugar-producing industry there at least on a parity with their coconut trade. We may not need that sugar immediately, but neither shall we get it immediately. Unless the unexpected happens and India produces 5,000,000 tons of *gur* or its equivalent in a more refined type of sugar, and friend Filipino turns out his million tons, those backing Malaya as a producing centre can go ahead with confidence, for, as has so often been pointed out of late, the increased supplies that will be required in five or ten years' time have yet to be planted. Why not let Malaya lead the way in that direction?

Vegetable Oil Notes.

Le Bulletin Agricole du Congo Belge for June (7, rue Thérésienne, Bruxelles) starts with a note by Mons. v. Goosens, the Director of the Botanic Garden at Eala, on the Sugar Palm (*Arenga saccharifera* Labill), which yields the piassava fibre of commerce. The seeds, we are told, contain but a small percentage of oil, .46 per cent. only when dry, or .30 when fresh. It is calculated that 26 kos of fibre is obtained from each palm, of which 2.80 kos does for brush-making, and 15.55 kos for mattress-making, leaving 7.65 as waste.

Mons. L. Pynaert continues his excellent series of notes on The Banana, and there is an important contribution on the Oil-Palm in the Congo, which is worth being carefully studied by those able to read French who are interested in this palm and its products. The areas under this palm are of course immense, so that at times like the present there must be many who would be only too glad to read what Mons. R. P. Hyacinthe Vanderyst has to tell us. Much discussion has evidently been going on as to how the dangers and difficulties of collecting the bunches of fruit can be minimized compared with the native method of using a *lukamba*, one of which Mr. M. T. Dawe brought home with him from the Gambia, and which we believe was the one shown in the exhibits on the Gambia stall at the Rubber and Tropical Exhibition. The present "best method," with a pulley and cord, as used on board ship or to paint the front of a house, may yet be replaced by something less troublesome to fix and so more attractive to the worker.

Three important communications have come to hand on the oil-palm, all within a week., viz., this one in the *Bulletin Agricole* of the Belgian Congo by Mons. Hyacinthe Vanderyst, one on the establishment of an experimental estate on the Ivory Coast by M. Van Pelt in the current issue of the *Bulletin* of the Institut Colonial at Marseilles, and a third one (a reprint in English, in the *Bulletin* of the Institute at Rome), also out of the Marseilles publication, by Teissonnier on the Exploitation of the Oil Palm in the Ivory Coast, which first appeared in 1919 (pp. 69-78).

In a more recent number Mr. Chevalier discussed at length "Improved Methods of cultivating Ground-nuts in Senegal" (see *Bulletin* No. 2, 1920, of Institut Colonial), whilst we are waiting to hear what Mr. Dawe has to tell us in his report on the Gambia,

which should include much about the ground-nut, this being the leading (if not, at present, the main) crop over there.

UTILIZE YOUR COCONUT MILK.

In our book, "Coconuts—the Consols of the East," is discussed very fully the question of the utilization of the milk in coconuts, and how it could be utilized and not wasted. There are a dozen places where this subject is discussed, in some cases at considerable length. Analyses are given on p. 295 and elsewhere, whilst suggestions as to what can be done with the milk are also included.

In January-February last year Mons. A. Lahille tells us of Coconut Milk, its Characters, Composition and Uses, somewhat fully in the *Bulletin économique* of Indo-China (see January-February, pp. 125, No. 140 of 1920, or *Bulletin* of the Institute at Rome, 1921, pp. 995-6), where the French authority discusses the analyses made at the chemical laboratory of the Pasteur Institute at Saigon, and describes the changes in the milk according to its age, where produced, when gathered, and the ripeness of the nuts, &c. An average of about 4.5 gm. of salts per litre was found, including potassium and sodium chloride, as well as lime and phosphates. Levulose, glucose or the like were there in the proportion of 50 to 55 gm. per litre.

You are advised to feed the milk to stock, but in that case it must be done fairly soon, and kept nice and clean. Mixed with lime it can help—on account of the potassium salts—to make up a manuring mixture for rubber or coconuts. It has diuretic properties and so, at times, is useful as a medicine when first removed from the nuts, after being filtered and sterilized in an autoclave.

COCONUT MILK TO COAGULATE RUBBER LATEX.

Discussing the use of coconut milk to coagulate rubber latex, we are told that Mons. Lahille had made some experiments in that connection, using 4 c.c. and 6 c.c. of milk and 100 c.c. of latex. At the end of forty-eight hours, however, coagulation was still incomplete and the latex of a brown colour. With age and contact to air the milk becomes acid, and thus, if the acid content at the time the fruit is opened is .37 per litre, it will have increased after eleven days to 8.88 gm. If it were used at this time after being clarified, it might act as a good coagulant for latex. But if the process of coagulation depends upon the action of the acids, then pure acetic acid, which can easily be added in the amount required, is preferable.

But, we would ask, why eleven days? Surely the milk ferments and turns acid soon after as many hours, hence the need of feeding it to the stock before it ferments. We have never followed such a course of scientific experiments as M. Lahille has done—and we owe him many thanks for doing so—but must we wait in the tropics eleven days to reach the fullest percentage of acidity in the milk?

A VEGETABLE OIL-SEEDS CONCERN.

Mr. E. W. S. Ventress came in to see us, and reported that he expects to leave again for the Amazon about the middle of next month. Referring to the opening paragraph in our last issue, where we com-

plain of the apologies for lard now being sold as the real thing, and ask whether a useful cake-maker cannot be obtained from a vegetable lard, Mr. Ventress assures us that such a product has existed for a long time, and is freely purchased and used by cake and biscuit manufacturers. Since this is so, what a pity not to push its sale in the retail shops and train British housewives to cut the present water-and-lard preparations adrift for good, certainly until pure lard is offered for sale.

Discussing vegetable oil-seeds and nuts, Mr. Ventress told us that he is now here to arrange for further capital to enable him to establish four well-equipped stations for the collection and cracking of nuts and to purchase steam-launches and lighters to transport, first the nuts to the collecting station, and later the kernels to the overseas steamers.

So far as we can understand, the capital of his present company will be increased to £50,000. When the necessary arrangements have been made and Mr. Ventress reaches Para or Santarem later in the year, we anticipate that big business will ensue in the near future. We certainly wish the promoters every success; any movements to open up and develop the resources of the Amazon always have our heartiest approval. Now let us discuss values.

LONDON PRICES.

SEPTEMBER.

COPRA PER TON—SPOT.

		London		Ceylon		Marseilles		Rotterdam		Hamburg	
		F.M.S.		Ceylon		F.M.		Ceylon		Ceylon	
		£	s.	£	s.	£	s.	£	s.	£	s.
Sept.	17	...	32 5	...	34 10	...	32 0	...	34 10	...	34 10
"	14	...	33 0	...	35 5	...	34 0	...	35 5	...	35 10
"	12	...	33 15	...	35 10	...	33 10	...	35 10	...	35 10
"	10	...	33 10	...	35 10	...	33 10	...	35 10	...	35 10
"	3	...	34 10	...	35 15	...	33 10	...	36 0	...	36 0

COCONUT OIL PER TON.

		Ceylon		Cochin	
		For shipment		For shipment	
		Spot		Spot	
		£	s.	£	s.
Sept.	17	...	56 0	...	69 0
"	14	...	54 0	...	69 0
"	12	...	54 0	...	69 0
"	10	...	54 0	...	69 0
"	3	...	56 0	...	71 0

OTHER OILS PER TON.

		Castor		Ground-nut		Palm kernel		Cotton		Linseed		Soya	
		Firsts		Crude*		Crude		seed		Spot		Bean	
		£	s.	£	s.	£	s.	£	s.	£	s.	£	s.
Sept.	17	...	55 0	...	55 0	...	50 10	...	47 0	...	38 0	...	46 0
"	14	...	55 0	...	55 0	...	49 0	...	46 0	...	40 0	...	44 0
"	12	...	55 0	...	55 0	...	49 10	...	46 0	...	40 0	...	46 0
"	10	...	55 0	...	55 0	...	49 10	...	46 0	...	39 0	...	46 0
"	3	...	55 0	...	52 0	...	48 0	...	42 0	...	38 0	...	42 0

SEEDS PER TON.

		Linseed		Cottonseed		Castor		Ground		Soya	
		Calcutta		La Plata		Bombay		Nuts†		Beans	
		£	s.	£	s.	£	s.	£	s.	£	s.
Sept.	17	...	21 10	...	20 0	...	15 10	...	20 5	...	29 0
"	14	...	23 10	...	21 0	...	15 0	...	20 5	...	28 10
"	12	...	22 0	...	20 10	...	15 0	...	20 10	...	28 0
"	10	...	21 10	...	21 5	...	15 0	...	20 10	...	28 0
"	3	...	22 10	...	20 15	...	14 0	...	19 10	...	29 0

		Linseed		Cotton		Coconut		Ground Nut ³	
		London Made		Lond. Egypt		£ s.		£ s.	
		£	s.	£	s.	£	s.	£	s.
Sept.	17	...	15 15	...	10 10	...	4E. 14 0	...	14 15
"	14	...	15 15	...	10 10	...	E. 15 0	...	14 15
"	12	...	15 15	...	10 10	...	F. 15 0	...	14 15
"	10	...	15 15	...	10 10	...	E. 15 0	...	14 15
"	3	...	16 0	...	10 15	...	E. 15 0	...	14 15

* English crushed, naked. † Coromandel. ‡ Decorticated.
 4 E. = English. F. = Foreign. 5 Liverpool. N!Q No Quotation.

Rubber and Cotton Notes.

CHICLE—A BIG THING FOR RUBBER PLANTERS.

Under the above attractive heading (for rubber planters) the *International Confectioner* of New York for August, reproduces on pp. 61-63 Mr. T. Dawe's exhaustive treatise on the chicle industry from a productive point, which appeared in the *Colombian Trade Review*.

The principal source of chicle is the Zapot-tree, using the West Indian patois name, the *Achras sapota* L. of the botanist, a tree well spread out in all the Central and South American countries, and of which Colombia has a full share, and if the output from Mexico continues to run low, there is no reason why Colombia should not make a successful bid to help supply the ever-increasing demand for chewing-gum, especially whilst sugar confectionery is so dear. There was a great prejudice against chewing in this country; we rather sympathize with that prejudice, but since Fate and the Government taxpayer—with the willing help of the confectioners—have made "sweets" so costly, prejudices have to be laid aside, and now we are told the "highest in the land" (below a certain age) chews chicle.

ARE OUR RUBBER DIRECTORS INCOMPETENT?

The *Malayan Tin and Rubber Journal* of Ipoh, in their issue of June 30th, reminds us that somewhen in May the *Manchester Guardian Commercial* published a most pessimistic article by one "Kedah," which summed up its arguments by saying that "The rubber plantation industry offers almost unique opportunities for reform. A fruitful field for many economies is open to a capable organizer. Abuses have been allowed to grow unchecked. These did not matter very much when rubber fetched double or treble its cost of production. To-day bankruptcy or prolonged stagnation appears to be the ultimate destiny of many rubber companies unless some drastic scheme for reorganization and regulation of outputs is adopted."

There are, we are told, two classes of men in charge of the industry. (1) The London directors, of whom it is doubtful if 15 per cent. have lived or worked in the East and few have any knowledge of Eastern conditions. (2) The other class, composed of the European staffs. Few have had business experience.

Of the directors, it is said that there are nearly a thousand, and not 70 per cent. of them are of any practical use to it. The other 30 per cent. are good; "to their country they have presented a source of extra wealth."

One wonders whether "Kedah" is on the Council of the Rubber Growers' Association; if not, what a pity it is that arrangements cannot be made to put him there? How very much more interesting the reports of their meetings would read with such an addition. One is glad to think that there is so much that is wrong with this important industry to-day, because later, when prices improve, bankruptcy and financial stringency will be less of a menace to the shareholders than we are told by so many is the case to-day if incompetency is wholly or partly the cause, for then the trouble can be remedied. A total absence of demand for surplus stocks, however, cannot be removed at will not even if all the present shareholders were replaced. This being the case, we would be glad if those interested, critics and criticized, in this important question will study on p. 140 what our Editor had to say in his letter to the *London Observer* as to the advantages of shipping no rubber from producing centres for an entire year. This letter is, of course, based on what we had to say on the matter in "Rubber and Cotton Notes" last April, when we reckoned that, after notice had been given and the necessary arrangements made to see that all obeyed orders as to non-shipment from any producing centre, the surplus or, at least, the visible stock in all hands would probably have grown to 360,000 tons. This is why we talk of one-twelfth as being equal to 30,000 tons in this issue.

PRICES AND STOCKS.

During the week ending September 8th, Messrs. Lloyd, Matheson and Carrut tell us, the market was stagnant with but little first hand rubber on offer, and Singapore cables at 28 cts. for Standard Crêpe and 27 for Standard Sheet (or 10d. and 9½d. the London equivalent). By September 15th there had been a rise and a fall, so that prices remained almost as they were, say:—

Spot quotations—

	1921 Sept 15th.		1921 8th.		1921 1st.		1920 16th.	
	s.	d.	s.	d.	s.	d.	s.	d.
Smoked sheet (F.A.Q.)	0	8½	0	8½	0	8½	1	5½
Crêpe (standard quality)	0	8½	0	8½	0	8½	1	7
Parà	1	0½	1	0½	1	0½	1	7½

Forward positions—

			Smoked Sheet		Crepe	
			s.	d.	s.	d.
1921 September	...	...	0	8½	0	8½
" October	...	...	0	8½	0	8½
" October—December	...	...	0	9½	0	9½

Stocks—

		Tons		Tons	
Plantation, London	.. Sept. 10th, 1921,	73,096	.. Sept. 11th, 1920,	33,220	
Parà, Liverpool	... .. 1st, ..	750	... .. 1st, ..	500	
		Total 73,846			Total 33,720

IS THE LONDON STOCK CORRECT?

There is some speculation and much hope that, if a careful check were made of the stock of rubber in London, it would be found that the total was below the amount now given (73,096) to a useful degree. One wonders if this would turn out to be true. It is so easy to go wrong in the numberless deliveries that

it is not altogether unreasonable to build up such a hope, especially as stocks do go wrong at times.

It must be noted that Brazilian rubber is, roughly, 50 per cent. above the price of Eastern Plantation. This tends again to confirm what we claimed in our leading article in July. Have you read what we then said?

BALATA.

The market continues quiet. Venezuelan block is put at 3s. 1d. for spot, West Indian sheet 3s. 7d. to 3s. 8d. against 2s. 4d. to 2s. 4½d. for hard pinky Panama block, and the same price, 2s. 4d. to 2s. 4½d., for good quality Tumaco.

(Continued from p. 136.)

go, to countries where a tax is placed on each wheel, all these and many more vehicles we know of come from Burlington, U.S.A., and on that account, where the vehicles go, there, we believe, the head of the firm has been as well at one time or the other.

Club men, when in America, must be pleased to know "Our Friend," for he is a member of many such chummy centres, some, needless to say, with somewhat quaint names: the Ragged Edge Club, we believe is one, the Lamb's Club another, the Japan Society, the Pan-American Society, the Whitehall, the Traffic, the New York Athletic Club, and last, but not least, the Circumnavigators' Club, whose members include ex-President Taft, now Chief Justice of the U.S.A., William J. Bryan, Poulteney Bigelow, also Mr. W. N. Macmillan of Nairobi, B.E.A., who entertained ex-President Roosevelt when hunting in the Dark Continent.

The success of the firm of Birch is due, so the tale goes, to their having always made and sold to the native what the native wants, i.e., a copy of the vehicle already in use, and not what the American factory had in stock to sell. What trade could be done if all firms would only follow this lead, i.e., procure samples from the market you wish to cultivate, and after carefully copying them, send over exact reproductions of the local articles? "Our Friend" when travelling carefully noted the vehicle most in favour, and bought one or more specimens, which were sent to Burlington to be copied exactly, and the resultant (of course—being American—we are told, the "greatly improved") vehicle sent across. Each time this has proved a success. Mr. Birch found that peculiar local needs produced peculiar local vehicles, as the carts with those enormous wheels that are met with over the wide stretches of soft-soiled prairie roads in the Argentine or the four-wheeled carriages with the syce step behind in India.

One Birch story is that the jinrikisha is an American invention, the first one being made about 1864 by Albert Tolman, a blacksmith of Worcester, Mass., for the lame wife of an American missionary who was stationed in China. If the clergyman did not secure converts, Tolman's 'riksha most certainly did, not only in China, but elsewhere as well, although the motor, too often a "Ford," is silently pushing even a 'riksha aside.



Tropical Life "Friend."—No. 195.

JAMES H. BIRCH, JR.

Editor of "The Log" (U.S.A.).

"OUR FRIEND" this month, who is brother to the American Minister at Lisbon, is best known in our less aristocratic atmosphere as chief of many concerns, although his appearance in this page is not because he, or rather, his firm, makes buggies, wagons and jinrikishas* that are "dreams" to use, but because "James H." himself edits "*The Log*" of Burlington, N.J., and is one of the original three who launched the Circumnavigators' Club, 140, Front Street, New York City, made up of men who know the world, not from the newspaper but from personal investigation. Mr. Noël Deerr, "Our Friend" in December, as stated last May, is a member of this much travelled community, and hence a reader of its organ, "*The Log*," in whose pages our sketch and portrait of Mr. Deerr made its reappearance as befits so useful and "sugary" a member.

Having read and re-read "*Hiawatha*" until we know long stretches of it by heart, we first made the acquaintance, indirectly, of Birch of Burlington, through a curious misunderstanding, one as curious as that of an old Breton lady who was a great consumer of English novels. "And how do you like Kipling?" someone asked her. "Kipling—what is that?" she mused benignly, and then speaking a little louder, said: "I cannot say that I do, for I have never kiplped."

"Do you like a Birch buggy?" we were asked in Barbados, and we, thinking of *Hiawatha* and his birch-bark canoe, asked how a buggy could be made

of birch. "They are not made of birch," we were enlightened, "but by Birch," and that was our first introduction to "Our Friend"—in his absence.

Later it appeared that this builder of buggies from Burlington had been following our trail fairly closely, so far as the West Indies were concerned, *via* Jamaica (which we did not reach), Trinidad, Barbados, &c., thereby laying a portion of his future fame as a traveller which has placed him in the forefront of the members of his quaint, famous club, and is likely to keep him there.

Once upon a time—many years ago—one of our forbears unconsciously did a good deal in the smuggling line through Her Majesty's Customs somewhere near the Line. It was over a dog-cart, and since then, watching the light vehicles, entering the ports of our own and other possessions for, at one time, if not still, the United Fruit Co., Ltd., used to take back Birch's confections in their somewhat empty banana boats to make them a little more remunerative. It was their arrival which, more than once, made our memory "hark" back to this delightful experience, whilst we wondered whether all the vehicles were sent "flat," or if one, now and then, is sent made up, with only the wheels and shafts detached, and if the latter, whether they have ever caused the Customs to lose revenue as in our case.

The dog-cart referred to was sent whole in the way described, with the wheels and shafts apart, and to save freight room the large case was filled with white shirts of good quality, some scores of dozens, the value of which ran into £400 or more. No invoice came to hand for the shirts until the following mail, and no one was aware of their presence. As the case was large and in the way, duty was levied, and it was passed and sent down town to be opened—and the small mountain of shirts discovered. An agitated discussion ensued. What must be done? Finally, being already late, nothing was done until the evening, when our relative called privately on the collector and told him what had happened. He was not thanked, for the dilemma he had been in was now shifted—and increased in the move—on to the shoulders of the official, who let fly, freely and fluently, not because H.M. Customs had lost revenue, but because "a confounded idiot had forced the collector to realize that he had not exercised sufficient care in the exercise of his duties." As a result, our present opinion is, once you are through the Customs, to leave the officials alone when the mistake made is in your favour. Evidently, we feel, it is a greater sin to "show up" the head of the Customs than to evade, deliberately or otherwise, paying duty on your goods.

Going back to "*The Log*" and the wanderings of its editor; although we cannot vouch for all the countries he has visited, yet, from what we know of vehicles in the tropics, we fancy Birch of Burlington has possibly been to Abyssinia, for when the late King Menelik bought his first carriage it entered that country with a Birch plate on it, whilst curious conveyances called *pouse-pouses* in Madagascar, cabs in Korea (with one big wheel like a Chinese wheelbarrow), the two-wheeled volantes that go, or used to

* Is this the correct way to spell this much mis-spelled word?

Business Notices.

1.—The address of TROPICAL LIFE is Messrs. BALE, SONS AND DANIELSSON, Ltd., 83-91, Great Titchfield Street, London, W.

2.—All literary communications should be addressed to the Editor, and accompanied by the necessary stamps for their return if not accepted.

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10.—The Journal will be issued on or about the twentieth of the month.

The Managing Director and Editor of "Tropical Life" will be pleased to consider the printing and publishing of useful technical works on Tropical Agriculture, Medicine, or other subjects dealing with the development of our Colonies and the Tropics generally, as well as similar books dealing with Russia, Japan and the East, whether the books are to be published in English or other languages.

Tropical Life.

SEPTEMBER, 1921.

Democracy and Empire Building.

SINCE our August issue was distributed the march of events has recalled to our mind more than one item within its pages. One reason which caused us to hark back to what we then said is the increasing tendency of those who dislike the terms Empire and Imperial to encourage workers in the U.K. to loaf and go slack, whilst the wily but well-trained and industrious German is going full speed ahead. There seems to us at times, therefore, to be more disloyalty rife to the welfare of the British people as a whole in some of our Councils and Boards of Guardians than those beyond their boundaries can imagine or believe.

It is easily possible, we are told in the London daily press, for a family of six to enjoy a weekly income of over three guineas without any members of it doing work of any kind in return. An unemployed man receives 12s. 6d., his wife the same, thus making 25s., add 5s. for each child and up to 15s. for rent and 3s. 6d. for a cwt. of coal, makes £3 3s. 6d. a week for a happy family when the man is fortunate enough to be out of a job. What wonder, therefore, that our

much-needed houses are not being built and that would-be customers overseas find our costs too high and deliveries too slow. Who wants to work (except journalists) when you can receive £3 3s. 6d. a week, providing the head of the family is not doing so? What wonder, therefore, that wages are so high when those doing nothing are receiving such pay.*

Over-high wages, coupled with under-production (to which we have so often called attention), is causing a loss of trade to this country to a degree that we feel sure will be news to those who vote these princely salaries to men who do nothing to help win the peace. Thanks to our parochial and altogether out-of-date system of education, we feel that many, and probably the majority of those who rule us as Councillors and Guardians, are unaware of the stupidity and danger of their policy. Tell them that they are not acting in the best interests of the Empire or an Imperial policy and they will say to each other: "Well done, the sooner we kill everything Imperial the better . . ." The better for whom? That is where their lack of education fails; they cannot answer so deep a question. They do not know the evils they are creating.

"High wages are not the only element in our (over-high) cost of production," the *London Evening Standard* truly says. "Taxation, local and national, is also a very large element. Every person who, by refusing to work at an economic wage, draws unemployment allowance is making it harder for industry to support those who are still at work . . . Nothing will be right until the cost of production is brought into due relation with the capacity of purchasers, and there can be no course less tending to that end than this creation of a vast class of pensionaries."

America, like ourselves, is still troubled with the salaried locusts that swarm over the land. If the flappers have gone the adults remain, and they draw heaviest on the ever-decreasing incomes of the individuals. Colonel Dawes, Director of the Budget in America, has no more love for them than the taxpayers over here. Known as "Hell an' Maria" Dawes, *Current Opinion* tells us that he "lets go" when discussing these unnecessary appendages, especially the permanent barnacles.

"Damn 'em!" he is quoted as breathing explosively a few days ago, "I dislike these pitiful little personalities who have strutted around the Government service for years, imposing themselves on capable workers, through desire to wield a little bit of power or to play politics. To hell with that type of man in Government service. That fellow must go, and go quickly. He's not the kind that makes for efficiency, especially in Government. His crime is to hold the loyal and deserving fellows down. What we want in reconstructing this great business concern of the Government—the biggest business corporation in the world—is to humanize the whole establishment and rid ourselves of such objectionable types. There must be more incentive for the plodding workers, who have been denied the recognition they long ago earned."

* It is reported that a dole amounting to 30s. for man and wife and 7s. 6d. for each child was "demanded" by those not working. Maybe even this sum will be given by the trade-killers before we reform.

We want a few men like Colonel Dawes over here. It is so nice to have someone to swear for you. Although not believers in strong language, we prefer those using it in such a cause to the revenue-consumers who cause it to be used.

We are among those who believe that Russia has to thank Lenin in the main for its present misery, and, like all shiftless people, those who have caused the trouble will sit up and expect the world to feed starving Russia and put her people on their feet again. The greater the spendthrift the greater the sponger, and the greater the absence of self-respect. Such people seem unable to realize that there is anything degrading in living on charity. They, possibly, refuse to consider it a charity. "We are in trouble—you *must* feed us," is their cry. This is the cry in Russia; and it is becoming more and more common in this country, not only among the unemployed, but among those who collect and spend the money of the public. We know of at least one typical Lenin in London. Interesting, plausible, listen to him discuss Ruskin and his lectures in Oxford, and you would like him to continue, but—you suddenly realize he is talking politics and you think of Lenin, Gandhi, and a dozen other such unpractical and dangerous dreamers, and the fascination passes.

Such is the world of to-day, where people are thickest, and the exploitation of the subject the keenest and least ashamed. One wonders how long such a state of affairs will continue.

The Prince of Wales's commendation of the Agricultural College for Trinidad, which we discussed last month, or the brief notes underneath the portrait of "Our Friend" in that issue, showing Mr. Aspinall's record as a worker to help rear the edifice known as the British Empire, are reflected in the thoughts generated by such a play as "The Edge o' Beyond" (see August T.L., p. 124), and act as a stimulant to most of us to increase our efforts more than ever to make good the ravages of the war. There are those, however, who, having no idea of foregoing a single comfort, are not moved in this healthy manner. To them the idea is merely romantic, something to talk of and to leave for others to carry into practice, whilst they—the romance lovers—gather in the profits therefrom.

We are moved to say this partly from our own—almost daily—experience with workers, dreamers and wasters, and partly by the publication (in English) of Pierre Loti's more recent work, "The Sahara."* In this book Loti, romantic but amazingly observant and shrewd, delves down to the very bottom of all things as he describes the life of taciturn and trustworthy Jean Peyral, *poilu*, among the Senegalese in Africa, showing how the lure of the place holds him against his great attachment to his beloved Cevennes, and even against his love for mother and betrothed until, remaining in Africa, he gets killed in a little action, and Fatou-gaye, his African sweetheart, finding his body, kills their son and herself over it.

It is on such foundations, tragic to the extreme,

Loti seems to claim, that Empires are built. Those who are conversant with the building up of the British Empire with its Red Indian wars, the West Indian and African struggles, or the efforts and sacrifices required to secure Australia and the South Sea Islands, know how right the French writer is. But how many are there who are conversant with or who (in the U.K.) care what others have done to enable them to live in comfort now?

Yet if we are to prosper we must teach the woman as well as the man in the street, to realize the part that the Jeans and the Fatou-gayes of the world (French or English) still play for the good of those at home prospering in safety whilst the Empire workers strive and suffer as they did in Singapore early in the war and are doing now in Southern India. Without these workers, labour at home would go flat (if they are so now it is not for want of orders) because without those willing to brave the ordeal that have always, and will always exist, something would be missing in the ingredients of the mortar that goes to build up the foundations, hidden underground of the mighty Empires that have been, that now exist, and always will in spite of local disparagers and those who, unable to think imperially themselves, wish to make out that it is wrong for others to do so. But these same stay-at-homes do not find it wrong to tax the Empire-builders whilst living on the fat profits that without their help would never come into being.

Meanwhile the idea of an Agricultural College for West Africa, as well as for the West Indies, was brought forward in the House of Commons on August 2nd by Mr. Gideon Murray, M.P., a great worker and thinker on the broadest lines. At present the proposal does not seem practical. There is much to spend money on in West Africa for some time to come. Besides—in the same way as trained men have gone from Trinidad to teach the Gold Coasters—so can the intelligent youth from West Africa cross to the West Indies to attend the college courses in Trinidad, when that institution is ready. Their certificate of registration may have already been received, and that done, the money having been voted, what need for delay? (Remember our cartoon on the subject.) Furthermore, one very good friend has given £1,000 towards the upkeep, whilst the Cacao Twins (not Messrs. Rowntree's) have promised £500 a year between them for two years towards a chair to encourage the study of cacao pests, their habits, and possible poisons.

As we go to print particulars have come to hand concerning the registration of the College. Our friends the Information Bureau of 140, Strand, report that the West Indian Agricultural College has been registered as a company limited by guarantee, the word "Limited" being omitted from the title by licence of the Board of Trade. The objects are to establish and carry on the West Indian Agricultural College in the British West Indies; to provide instruction relating to tropical produce, including sugar, rum, molasses, cacao, coffee, cotton, coconuts, rice, citrus and other fruits, dyewoods and all vegetable, mineral and marine products of British West Indies, including British Guiana and British Honduras.

* To be obtained of TROPICAL LIFE Publishing Department. Price 10s. 6d. net.

The signatories to the Memorandum of Association are:—

G. V. Fiddes (Under Secretary of State, Colonial Office), on behalf of the Colonial Secretary.

Sir Norman Lamont, Bt., Palmiste, Trinidad, on behalf of the Govt. of Trinidad.

Sir Frederick M. Hodgson, 21, Rosary Gardens, S.W.7, on behalf of the Govt. of Barbadoes.

E. R. Darnley, Colonial Office, S.W., on behalf of Govt. of the Leeward Islands.

H. F. Allen, Colonial Office, S.W., on behalf of Govt. of Grenada.

A. J. Bain, Colonial Office, S.W., on behalf of Govt. of St. Lucia.

H. G. Bushe, Colonial Office, S.W., on behalf of Govt. of St. Vincent.

R. Rutherford, 15, Seething Lane, E.C., chairman, and on behalf of West India Committee.

W. H. Himbury, Royal Exchange, Manchester, General Manager, and on behalf of British Cotton Growers' Association.

The management is vested in the Governors. No persons have yet consented to act. Solicitors: Burchells, 5, The Sanctuary, Westminster. The registered office (at least *pro. tem.*) is at 15, Seething Lane, E.C. File number: 176,726.

"Tropical Life" at the Play.

REST and recreation can be obtained in more ways than one. You need not always sit on the sea-shore, lounge in a hammock, nor snooze in a punt to cure jaded nerves. Such slackness would tend rather to aggravate our state. We require a sedative first. We secured this by a visit to the London Pavilion to see Nikita Balieff and Co. in "*La Chauve-Souris*," and came away sufficiently cured for the lounge, and although we are too busy to indulge in the latter, the pleasant evening we spent will keep us going for some time. Others will be wise to give the cure a trial. If you do, be sure and arrive punctually. All is good, but if one item is better than the rest, it is "*Porcelaine de Sèvres*," which starts the show. We should put it later on in the programme, as there are always some late comers. "The Parade of the Wooden Soldiers" is marvellously "life-like"; they are so exactly like wooden soldiers, the chests and legs in particular. Matisse or Camoins might have painted the scenery, but they are by Rémisoff. Go and see these Futurist designs used on the stage. If you wish for attractive music well played, go and watch Lucien Wurmser with the bâton or listen to Zlatine at the piano. The history of the gipsies has always interested us; in the scene at the Moscow restaurant, in which a very full band of gipsies, both male and female, sing and dance before the diners on the stage, the music and the costumes of the women closely resemble those of modern East-Indian women, especially those to be met with in British Guiana or the West Indies. Does not this prove—since we feel sure the costumes are correct in all details—that the gipsies came from India, and those frequenting Moscow evidently have not altered much, considering the long time since these people—the Tchingani of the Sindes race or tribe—were driven out by Timour in 1400 or so? The

singing, i.e., the voice, of Mme. Schischkine in this turn made you regret that she did not appear again. We were more fortunate with Mme. Karabanova, dancer and singer. In "*Porcelaine de Sèvres*," in "*Katinka*," in "*Copenhagen Porcelaine*," she was wonderfully good, and well seconded by Mme. Dianina as her dancing partner. Then there is M. Balieff himself—in evening dress—who pretends he cannot talk English when introducing each turn. Sit up close, as he is most amusing and might talk louder. If the programme is changed we would suggest more singing by the female artistes and plenty of dancing, as in the gipsy scene.

In case you want a further respite from work, go and see George Tully in "*Out to Win*" at the Shaftesbury Theatre, and especially look out for the second act, whilst the third one, in Mrs. Barraclough's House, runs it close. Here you will see Miss Hilda Bayley again, and, if you enjoyed her performance in "*Carnival*" as much as we did, the meeting will be a pleasing one. Miss Edith Evans as Mrs. Barraclough did not have a great part, but she made the character most interesting, and added much to the success of the play.

"As you doubtless know, the greater part of the West Indian population consists of the negro race, and I should like to make reference to the loyal way in which they have worked, not only during the period of past depression when wages were low, and they bore the burden of poverty together with their employers, but also during the more recent period, when industrial unrest and strife has hampered production throughout the greater part of the world. During this time, the West Indian industrial labourer, while demanding, as is natural, that he should share in the improved conditions by increased wages, has proved himself, with few exceptions, to be a loyal and law-abiding citizen."—Sir Edward Davson, before the Royal Colonial Institute, when speaking on "*The Revival of the West Indies*."

According to the *Indian Planters' Gazette*, the ubiquitous rat has been playing havoc again. Such a small pest and such a huge amount of harm, for we are told that a serious breach in the embankment of Yandoon Island (Rangoon), believed to be due to a rat-hole, has resulted in 4,000 acres of paddy crop and nurseries for a further 4,000 acres being swept away by floods. The embankment at the spot is 10 ft. above the flood level.

We understand that Messrs. Augustin Challamel of Paris (Rue Jacob 17) has recently published (in French) another book by M. Ph. de Sornay, whose work on the leguminous plants we published in English some years back.

The new book is entitled "*Culture de la Canne à Sucre à l'Ile Maurice*"; it costs fcs. 50, and runs into some 677 pages, with thirty-two illustrations. Those who can read French and are interested in sugar planting, especially in Mauritius, will be wise to add such a book to their library, especially as, on account of the war, we are a little behind in our

knowledge of this important crop. The saving of sugar of late years, owing to improved methods of extraction first from the cane and then from the juice, must help to reduce costs. What planter in these days does not wish to do so? From what we gather, M. de Sornay is particularly strong in the section of his book dealing with extraction work.

Trade, Politics and Finance.

THE Exchange family seems to have fallen out again. Uncle Sam still sits erect in the middle, smiling and sure of himself, but quite aloof (except indirectly) of the troubles affecting the rest of the family. Germany has had to give over Ms. 400 for one £ sterling, or \$3.73 American, whilst France, Belgium and Italy all have to pay more just when, to an outsider, everyone appeared likely to settle down. Germany seems to flourish over the trouble; one wishes that other countries could do as well.

Our export trade, of course, shows an enormous decline compared with last year, but then (wholesale) costs are so much lower. Some wish to claim that the returns to the end of August "pan out" better than might have been expected, as the quantities do not appear so prominently as the (much lower) values do in the returns. Coal is now said to be costing 36s. per ton for export, against 87s. a year ago and 14s. before the war. Of general exports, leaving out coal, the London Joint City and Midland Bank reports that our net imports (i.e., retained for consumption) and exports are but 51.6 per cent. of 1913; this being so, when we claim that the world will need all the raw material going, and more besides, we cannot be far wrong. Of course, pessimists will say that there is nothing good in the Old Country, but do not listen to them. We are all right, but, like others, have to be careful and are only going slow. Meanwhile, if we are taking half or less than half (for there are more of us) than in 1913, think what we and the rest of the world will need when we all bring up our requirements to a level with 1913, allowing for present increased populations. It is to be hoped, therefore, that a way will be found to keep the estates going during the coming slump period, for we shall need their full outputs when the world can satisfy its appetite.

Thinking of this and knowing that, widespread as the circulation of this journal has become, there are still a number of people who do not read it regularly, our Editor addressed the following letter to the *London Observer*, which that paper was good enough to publish on September 11th. It is, of course, a very condensed statement of what we published on the subject last April (pp. 52-53), going more fully into details. The idea is for the officials of the ports where the rubber is now lying to collect, as they do with the duties on tea, sugar, &c., the share due to the Exchequers at producing centres before the rubber can be removed (whether the buyer or seller pays this is for them to decide when making their bargain), and remitting it to where it should go, either quarterly or otherwise, as arranged between the authorities. We reprint the *Observer's* letter, as the demand for our April issue left us without copies to send to many of those who asked for them. We have a few on hand now, but at one time were quite bare of copies.

RUBBER RESTRICTION.

SIR;—As no success seems likely to be achieved with any plan so far suggested, why not give more consideration to the one I propounded last April? The main idea of this is:—

1. That no rubber be tapped for *twelve months* from an agreed date, i.e., that the Customs officers at all producing centres, British or foreign, shall seize as contraband any parcel of rubber shipped after the agreed date.

2. To give revenue to the (alleged) empty exchequers at producing centres, and in return for the help given by the Governments over there (thus making them a partner in the deal), after allowing the producers or owners of the rubber on the agreed date, 1s. lb., or more than one-third present average values, the Government at the centre where the rubber was produced shall receive half the net proceeds above 1s. lb. gross.

3. At 1s. lb. the world stock, now at least 300,000 tons, and growing monthly, is worth £33,600,000. Here is ample to keep the labour on the estates, and (with or without advances) to adequately cultivate and clean the ground and tend the trees. Also to keep the white staffs out there. But the price will not stop at 1s. lb. only.

4. Directly consumers realize that no rubber will be exported for twelve months prices will at once advance. I propose to regulate and check the advance by adding only 6d. lb. to the price each month or (if sooner) when one-twelfth of the stock at the start, i.e., 30,000 tons or more, is calculated to have passed into consumers' hands. I would like to suggest that consumers only are to be supplied. The second month, or twelfth, on these lines would be 1s. 6d. lb., the third 2s., the sixth 3s. 6d. lb., and the twelfth and last 6s. 6d. lb., and no more. Even if all the rubber were sold within six months, out of faith to the buyers, no more rubber must be shipped during the rest of the year. There will be enough to go round.

5. On this basis producers or owners would receive 1s. 6d. lb. when the price is 2s. lb., 2s. when it is 3s. lb., and 3s. 9d. when it is 6s. 6d. lb. The Exchequer at producing centres would receive 6d. at 2s. lb., 1s. at 3s. lb., and 2s. 9d. when 6s. 6d. lb. How much better for both than on the present basis, which will grow worse unless some remedy is evolved.

Meanwhile the trees will have a rest, and future yields be all the better in quality on that account. Labour of all ranks will be kept going, the estates, instead of being abandoned, will be maintained and, when the world-demand becomes normal again, there will be the trees, the crop, and the workers ready and eager to satisfy it fully; and this is more than anyone can look forward to at present.

Yours truly,

H. HAMEL SMITH,

Editor of "Tropical Life."

5, Great Tower Street, E.C.3.

September 6, 1921.

Coming to other produce and the general market reports, cotton shows signs of considerable improvement, in spite of the heavy carrying over on all sides; buyers are realizing what a lot of cotton the world will need when things straighten out. American mill-owners, on the other hand, realizing that retail prices

are too high, are not waiting for the revival, but are selling out now, for, having bought when rates were low, present values show a handsome profit. Meanwhile cotton planters everywhere will note that the retailers are holding up the trade in this branch as in others. With a run up of 266 points in a day big profits (or losses) are easily secured. Finally, 12.43d. was reached with lower values (as 11.87d. for next June) as time goes on. Sakel Egyptian, we were also glad to see, has run up to 20d. and over. This should help our Arizona friends as well as planters in Egypt to tide over some of their troubles. Reference to prices in previous issues will show to how low a level rates had dropped and mark the extent of the present rise.

Coffee has also been more in demand and realized better prices. Here again it would be a useful guide to compare values month by month. The same (September 10th) as in Brazil and America, prices are considerably higher, and Jamaica Blue Mountain coffee is reported to have realized fully record prices, say small good at 100s. and upwards, small fine as high as 141s., whilst the boldest went at 181s. to 220s., and peaberry up to 223s., or, at Liverpool, 227s.

Against this, East African sold up to 66s. for ordinary, and 65s. to 73s. was realized for middling Uganda, Peaberry Nairobi went up to 107s., middling greenish realized 106s., fair to good 94s. 6d. to 106s. 6d., and fine 116s. 6d. Bold fair Colombian sold at 91s. and brownish 95s.

Manila hemp is worth £37, Mauritius £40, whilst East African sisal realized £36 to £40. Fine Indian coir yarn sold at £44, good up to £35, and medium grades at £24 10s. to £30. T.N. Orange shellac is at 300s., Garnet 265s., A.C. cakey and blocky 285s., with higher prices for futures. We believe that those in the trade, hoping that the world-demand for varnish will improve, look for increased orders from carriage builders and others. Copper is worth between £67 and £68, and tin, after being lower, is now back at £156, rising to £163 for future delivery.

Coming to finance, the following is a comparison of the principal points in the returns of the Bank of England on September 10th compared with a year ago:—

September 10th.	1921	1920
Bank Bullion ...	£128,410,206	£123,077,317
Reserve of Notes ...	18,606,720	14,096,645
Private Securities ...	79,827,413	76,340,750
Notes in Circulation ...	126,432,535	125,908,565
Rate of Discount ...	5½ per cent.	7 per cent.
Price of 2½% Consols ...	47½	46
Price of Bar Silver ...	38¾d.	59d.

The London Cocoa Market.

BY THE EDITOR.

I do not know whether I am very keen on the Tako-radi deep harbour scheme for the Gold Coast. As a harbour, I imagine it would be perfect, but as a commercial proposition able to pay its way, I distrust it. Accra cocoa may be produced at a very low cost, compared with the West Indies and elsewhere, but the industry will need all its energies and low costs

to hold its own against Bahia, without having to be the pack-horse to help carry the main cost of the full Tako-radi scheme. If it is not to be the full scheme, then I agree that Secondee will always be the better of the two at a practical level of costs, so why even spend £1,600,000 on the proposed new harbour?

We have been told that Tako-radi will reduce costs from 25s. to 10s. ton. As there are only 40,000 tons or so of cocoa shipped from there, i.e., via Secondee (with rather more manganese ore and 12,000 tons other produce—the average import and export being about 120,000 tons a year), such a small trade cannot carry even a £1,600,000 scheme, whilst as for £5,000,000 official and £7,000,000 actual or probable estimate—the whole of the Gold Coast would have to shoulder the burden, and this must adversely affect the price of cocoa—those 120,000 tons—shipped from Accra (too far off to benefit by Tako-radi) and still to be put on board in surf-boats. By the way, since it was suggested at the June Conference that a cable-way might be run out from the beach at Accra to convey the cocoa, as is done with the pitch in Trinidad, out to sea and on board, I have heard that such an idea is quite possible, and that plans for erecting the standards are already in existence. This being so, what a pity not to spend money on Accra, and leave Tako-radi alone until the tonnage around Secondee is about four or five times its present size.

The June cocoa conference left behind it an amazing amount of information about the Gold Coast cocoa industry. At that conference we discussed all the centres, Bahia, San Thomé, the West Indies, also and especially the Gold Coast. In spite of having one of the most efficient agricultural departments you can wish for, and, in spite of all the work that Messrs. Cadbury's have put in to pull up the industry, I still have more faith in Bahia as a "stayer" than I have in the Gold Coast unless the native owners change their tactics entirely. As chairman at the June Conference, I expressed my views at the seven or eight meetings so fully regarding the neglect of estates and the waste of land making new ones over there, that I will not say any more except this. Whilst, as Sir Hugh Clifford pointed out, Accra can produce cocoa below the cost of any other centre until it can and is discouraging production elsewhere, the outlook owing to the indifference of the native owners is so unsatisfactory that, go on as they are going, we shall have nothing but an exploded 'gas-bag in ten years' time, with all the other centres—except Bahia—working at only 50 per cent. efficiency, if as much, because of the under-cost method of production on which the Gold Coast output is being and always has been placed and sold on the world's market. Accra cocoa is not really paying; it pays the present owners only because the estates are starved, and the future of the colony is being spoiled for the benefit of those who grab the money to-day. In ten years', even say twenty-five years' time, what will the output from the Gold Coast be with the present native policy? What of Tako-radi then? If the colony cannot stand the cost of Tako-radi now, what will happen then? Would it not be better to wait a little and spend the money on railways up-country to develop industries other than cocoa until you see signs of those 2,000,000 tons of produce coming

along, which the big scheme will need, and so help to plant up the hinterland first and make the harbour a success afterwards? You must start somewhere, but is it wise to start with the harbour in place of the merchandise? If railways were laid down to open up the country behind Secondee and a cableway run out from Accra, or a carefully laid system of railways financed that will take *all* the cocoa to Tako-radi, then it may be (with improved methods up-country on the estates) Accra cocoa will continue to thrive, but it will not do so otherwise, especially with 5s. a ton (if not more) put on it to feed Tako-radi until that scheme can stand alone—whenever that will be. If there are reasons other than purely commercial ones behind the proposals, then I have nothing more to say, but having heard the proposal fully discussed, I have no reason to think that military or political advantages have anything to do with the scheme.

Coming to other matters, let us discuss the American importations of cocoa for the seven months January-July. Here they are:—

Imports of raw cocoa into New York (per Frank G. Alden and the New York *Spice Mill*):—

Jan.-July:—	1921 Bags	1920 Bags	1919 Bags
Trinidad ...	176,964	104,947	73,857
St. Thomé ...	33,394	22,517	...
Accra ...	305,783	473,294	740,146
Bahia ...	322,007	170,690	262,634
Sanchez ...	221,631	185,861	179,288
Venezuela ...	108,082	82,367	52,110
Guayaquil ...	157,383	222,423	199,111
Grenada ...	4,146	8,408	7,311
Pará ...	10,499	780	4,500
Colombian ...	10,053	7,901	5,520
Others ...	40,921	51,438	47,944
Totals ...	1,390,863	1,330,626	1,572,421
Jan.-Decr. ...	—	2,083,619	2,655,402

In 1920, according to the *Bulletin* of the A.A.E., whilst 302,219 bags of Guayaquils went into New York, 1,175 went to Los Angeles and 15,800 to San Francisco.

According to M. Anthime Alleaume, there were 350,464 bags on hand at New York at the end of July, against 383,007 in 1920.

In 1919, 28,763 bags of Haitian cocoa were imported, against only 6,976 bags this year. At the end of June the New York imports stood at 1,282,785 bags, against 1,195,736 last year; therefore, July did not show quite so marked an increase on 1920, as was the case at the end of the half year. This fact, no doubt, has not escaped the attention of those who are claiming that the American market is not taking the cocoa it used to do, nor does the table show what the actual consumption in the United States works out at this season compared with former ones. Is it correct to say that there is a troublesome drag on demand over there, although America (and Germany) alone has money to spend? The German consumption is already a marvel, surely it is wonderful, therefore, to hear of wealthy America going slow. Are her retail prices also too high?

According to public returns, the total imports into Hamburg compare as follows:—

	1921 Bags	1920 Bags	1914 Bags	1913 Bags
Jan.-July 7 months	530,851	237,605	755,163	598,117
Jan.-Dec. 12 "	—	675,699	786,484	988,693

HOLLAND IMPORTS—

Tons of 1,000 kos.	1921 Tons	1920 Tons	1919 Tons	1913 Tons
Jan.-July ...	17,484	12,203	11,887	23,124
Jan.-Dec. ...	—	28,763	39,823	43,228

The French figures are discussed at the end of the Havre stocks a little further on.

Producers, therefore, must look round and see which they feel to be their best market. The U.K. is, of course, banned to foreign cocoa, except perhaps Guayaquils, and that seems to do but little good when it does come, but even of our own growths we are receiving but scant allowances, as I show later on, although quite as much as we want.

One day, perhaps, before trade and enterprise is quite dead in this little island, the general public—i.e., those who are not in Government or municipal pay, neither manufacturers nor distributors (including retailers) of goods, nor trade unionists—will organize their forces and find out—to their surprise—that they are still in a great majority. This done, then they can insist that the whole question of retail costs should *really* be gone into, so that it can clearly be shown where the money goes between the producers' prices (for wool, cotton, maize, rubber, meat, even wheat, &c.) and the price paid by the actual consumer. When capital is at fault, then squeeze them and make them sell as was done to the planters and those holding raw materials last year. When it is labour which is killing trade, through over-high wages, through over-short hours, and especially by curtailing output, then surely the two million men said to be out of work can supply a remedy with the assistance of those who are supposed to rule us if they really care for the welfare of the Empire at large. The tax on sugar would not and should not be so high, and on other foodstuffs—tea, cocoa, &c.—it should be lowered. When this is done, and it could be done at once, the producers would both sell their stocks and get better prices, and those who *really* want work could get it, and those who are only bleeding the country and giving nothing proportionate in return will be put out to starve a little in their turn or (more probably) grow fat on their savings. As it is, we shall drag on as we are doing for another two years, but there is no real need to do so. Those causing such a state could be squeezed just as producers and actual consumers have been squeezed for so long. Even now the small shopkeepers round London, not content with overcharges, only sell what they like (what carries the best profit), will not deliver goods, and certainly will not call for orders. Like the workman, they are only 50 per cent. efficient compared with 1914, whilst charging us, according to the *Labour Gazette*, not the Government returns, 122 per cent. more on an average than before the war. Nothing I buy is below that average, and if rubber, cotton and woollen goods were included, it would surely be 222 per cent. above 1914 rather than 122 per cent. only.

And this is why the U.K. is buying so little cocoa (and other tropical produce), and so long as things remain as they are and the sellers of manufactured goods plus labour are allowed to act as they are acting, everything will stagnate, as the spending capacity is but small and the will to buy (even when the money is there) is less, because we know we are being over-charged.

So, turning to the Board of Trade returns for August, this is what we see. Landings in the U.K. for the eight months, less than half those of 1920, and still further behind those of 1919; whilst just upon 8,000 tons of foreign manufactured cocoa went into consumption, we are still—in the U.K.—6,629 tons behind in the deliveries of raw cocoa to our own factories. I will give the figures in full.

Board of Trade returns, January-August:—

	Imported Tons	Del'd. H.C. Tons	Exported Tons	Stock Aug 31st. Tons
Aug. only, 1913	2,142	409	1,571	10,650
„ „ 1919	7,845	2,988	4,145	69,150
„ „ 1920	8,369	3,417	3,677	71,600
„ „ 1921	3,126	2,012	3,154	50,250

Decr. 5,243 Decr. 1,405 Decr. 523 Decr. 21,350

Seven months	Imported Tons	Del'd H.C. Tons	Exported Tons
Jan.-Aug., 1913	24,860	18,072	4,755
„ „ 1919	97,463	39,723	8,153
„ „ 1920	92,285	35,625	24,004
„ „ 1921	46,118	28,996	13,443

Decr. 46,167 Decr. 6,629 Decr. 10,561

To those interested in the movements of the competing growths of cocoa the following tables may be of interest. The totals do not tally with the Board of Trade figures I have just given, as they come to 48,473½ tons this year, against 93,710½ tons in 1920, but it must be remembered that the following tables are made up from the monthly returns before they have been corrected, and such corrections always, or practically always, mean shaving down, as in this case of the Board of Trade totals, compared with those below.

Imports of raw cocoa into the U.K. each month, January-August:—

Gold Coast		British W. Indies	
1921 Cwt.	1920 Cwt.	1921 Cwt.	1920 Cwt.
127,765	144,466	9,033	20,744
111,205	138,845	11,052	39,443
164,747	219,673	18,801	18,274
153,525	166,168	16,553	31,703
78,625	193,307	18,965	50,797
62,631	166,084	16,994	26,399
31,286	135,785	19,699	44,041
34,141	126,609	20,413	17,718
763,925	1,290,937	131,510	249,119

Ecuador		Other kinds	
1921 Cwt.	1920 Cwt.	1921 Cwt.	1920 Cwt.
1,245	nil	10,768	14,673
315	29,500	3,930	21,460
1,575	1,750	10,547	14,451
780	26,697	14,816	18,286
782	53,095	3,692	34,224
3,408	34,812	3,463	35,853
4,334	1,471	6,412	24,825
2,696	2,180	5,277	20,879
15,135	149,505	58,905	184,651

To the end of June, as pointed out last month, the Gold Coast exported 75,711 tons, against 79,921 last year. Both America and ourselves received much less (together 1,069,708 bags, or 66,857 tons, against 1,764,231 bags, or 110,240 tons in 1920), and so, as the exports have been pretty well maintained from the Coast, this means that other countries (Germany mainly) must be receiving a full share. In July, 4,919 tons were shipped from Accra against 6,711 in 1920.

Last year Ecuador distributed her 509,593 bags as under, according to the *Bulletin* of the Agricultural Association over there.

	Bags		Bags
New York	302,219	Spain	10,400
Los Angeles	1,175	France	12,354
San Francisco	15,800	Norway	4,825
		Sweden	1,400
Total U.S.A.	319,194	Belgium	2,200
England	78,279	Chili	2,011
Holland	31,150	Italy	1,970
Germany	27,943	Mexico	165
Denmark	17,190	Peru	512
		Total	509,593

With our small receipts it is but small wonder that stocks in London grow smaller, especially if you knock out the Guayaquil cocoa that is not wanted apparently; look at the figures:—

LONDON STOCK, Sept. 10th:—	1921 Bags	1920 Bags	1919 Bags	1913 Pre-war
Trinidads	25,297	53,213	39,564	26,849
Grenadas	19,370	31,999	17,537	28,453
Other W.I.	8,264	20,574	6,772	25,028
British African	15,607	38,824	36,726	62,681
Portuguese African	769	2,104	7,320	13,530
Cameroons	1,378	1,378	3,095	12,540
Ceylon and Java	14,467	22,859	7,437	38,657
Guayaquil	58,427	82,102	9,253	48,813
Bahia and Brazil	257	1,417	984	7,315
Other foreign	22,870	48,093	10,393	8,280
Totals	166,706	302,563	139,081	272,146

On June 30th the total was 191,337 bags, against 190,872 bags at the end of March and at the beginning of the year just over 200,000 bags.

Against this Havre is also much lower, and so is Lisbon, whose figures run as under:—

Lisbon Movements—		Bags.	
Stock on June 30th	85,683
Landed in July	3,096
Makes	88,779
Less deliveries in July	14,635
Leaves stock on July 31st, 1921	74,144
Against „ „ 1920	124,910

HAVRE, Aug. 31st.		New York \$3.71 Paris Fcs. 47.50		New York \$3.55 Paris Fcs. 51.60	
Stock Bags 1921	Value Fcs.	Stock Bags 1920	Value Fcs.	Stock Bags 1920	Value Fcs.
Pará	5,549	118 to 128	4,039	212 to 220	
Bahia	24,556	118 „ 141	45,251	185 „ 203	
Venezuela	23,645	138 „ 268	32,733	225 „ 305	
Trinidads	25,025	135 „ 140	60,382	212 „ 215	
Grenada & O.W.I.	10	115 „ 135	10	198 „ 212	
San Thomé	24,090	97 „ 141	70,335	175 „ 210	
San Domingo	32,821	103 „ 118	36,273	183 „ 188	
Haiti	27,335	82 „ 105	38,204	167 „ 198	
Accras	49,939	115 „ 118	31,234	172 „ 175	
Guayaquils	11,219	143 „ 163	14,430	255 „ 272	
Others	19,234	—	31,339	—	
Totals	243,423 bags		364,230 bags		

During last month 15,205 bags only were landed at Havre and 29,410 delivered, including 10,000 Accras, making 90,700 bags of Accras for the eight months, against 61,865 last year, and 164,000 bags in 1919. On the other hand, only 1,663 San Thomé went in, against 134,507 last year and 19,367 bags in 1919.

Besides the above there are some 29,000 bags of all growths waiting to be landed. Bordeaux on August 30th had a total stock of 92,564 bags on hand, against 126,505 bags last year and 157,426 in 1919.

The same as the U.K. (only more so), Havre shows an extraordinary falling off in her landings, as she received but 157,928 bags, against 580,942 bags last year and 513,641 in 1919, whilst her deliveries were 224,085 bags, against 449,724 and 150,576 in 1919. The consumption of all France for January-June amounted to 15,195 tons (of 1,000 kos), against 26,891 last year and 23,000 in 1919. Both of us, therefore, want to go ahead badly.

Turning to the produce side, perhaps the most interesting, if not pleasing, item of news this month is the falling away in the Bahia output. Exports continue to be fairly high, thanks to the demand from Germany, and, I suppose, the shipments at times to America, though mostly to Europe, but the receipts are incredibly low. This is due to inadequate rainfall from November to March. Later, however, I heard that very heavy rains had come. This also is not good after a drought, as it tends to wash away leaves, small pods and flowers, all of which lessens output and checks the trees whilst recovering themselves.

Bahia Movements—Jan.-May—

	Receipts		EXPORTS			
	1920 Bags	1921 Bags	1919 Bags	1920 Bags	1921 Bags	
May	9,535	13,355	107,540	15,291	41,200	
June...	50,371	7,814	23,198	33,724	14,652	
July	75,979	23,082	41,533	53,656	37,066	
August	101,415	*50,000	47,707	101,257	—	
Totals	237,300	94,251	219,978	203,928	92,918	

* Estimated.

I have not received the exports for August, and the receipts, Messrs. F. Stevenson and Co., Ltd. (who send me the above statistics), tell me is only an estimate, but I give the table as I do for my readers interested in this growth to see how the land lies. The rains spoken of will do good in four months' time or so, but from all one has heard, these smaller receipts must continue until then. The puzzle with Bahia is as to where her cocoa comes from to make up her exports during the lean pickings. I had an idea there was no great quantity there, yet the crop ending in April showed exports 25,000 bags above receipts, and now for the three months, May-July, the exports are 93,000, against receipts 44,200, or nearly 50,000 bags more, 75,000 bags in all, to be drawn out of stock.

Meanwhile the shipments during the weeks ending August 3rd and 10th show the rate at which Bahia is sending cocoa to the continent, according to *Wileman's Review of Rio*. To August 3rd, 11,716, say: Amsterdam, 4,350 bags; Hamburg, 1,800 bags; Rotterdam, 616 bags; Christiania, 250 bags; Trieste, 150 bags; Antwerp, 2,150 bags; Havre, 500 bags; Hamburg, 1,050 bags; Antwerp, 250 bags; Hamburg, 600 bags; whilst during the next week 3,400 bags went—all to Hamburg.

Coming to prices, Accras have certainly risen, and are now at 48s. to 50s. for fair fermented, against 56s. for fine Grenadas, and 58s. to 62s. for good medium to fine Trinidads. Never was there a time as now when it paid to ship your very best cocoa to the U.K.

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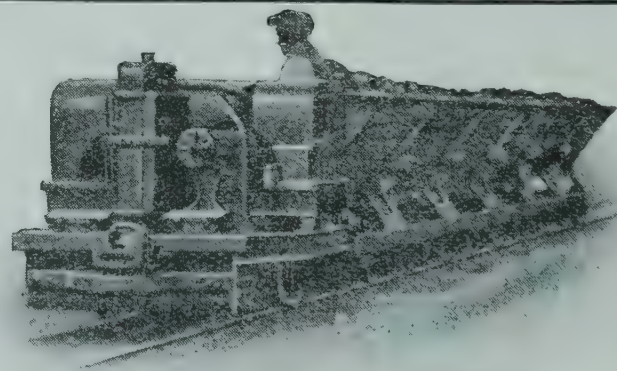
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The British Empire Exhibition.

THE PRINCE OF WALES AT THE MANSION HOUSE.

BY THE EDITOR.

As a member of the General Committee I was present, on October 12th, at the meeting held at the Mansion House, when the Prince of Wales discussed and explained the scheme which will enable the above exhibition to give that spurt to trade which we are all so anxiously waiting for, and then, having once started it, how it will keep it on the run.

Leaving the Dominions to tell their own tale, I will confine my notes to showing how the utmost publicity can be obtained for the tropics from such an exhibition, and what steps must be taken to make the most of such advantages. Then as the months go by, if there is further news to chronicle or hints to suggest, they will be included in this column, as has always been done with the several exhibitions with which we have been associated.

There is no need to repeat what the Prince of Wales or the Secretary of State (Mr. Winston Churchill) had to say; that has passed into history. We will concern ourselves with trying to carry out the wishes expressed, by no means a small task and with no means a lengthy period, just eighteen months to the date of opening, in which to achieve all that there is to do.

There is no need to give all the names of those on the Executive Committee, but we note that H.M. the King is Patron, and H.R.H. the Prince of Wales President of the General Committee. Under Lord Morris, as chairman of the Executive Committee, we are glad to see such names as Mr. A. E. Aspinall, C.M.G., Secretary of the West India Committee; Mr. D. T. Chadwick, C.I.E., Imperial Trade Commissioner in London; Sir Edward Davson, Professor Wyndham Dunstan, Sir Frederick Lugard, Mr. Stanley Machin, Sir Charles McLeod, Sir P. Stewart-Bam, last but not least, so as to ensure that all sides be well catered for, Mr. C. B. Cochran. Most of these have figured as "Friends" in *TROPICAL LIFE*, so that our readers can realize the experience that they will bring to bear to make the objects aimed at more certain of attainment.

Funds, of course, are needed, and at once, for the work of laying out the grounds, erecting and fitting up the buildings will take time. The Prince will be leaving for India and the East as we go to press; he expects to be away, he told us, about eight months. What is particularly desired is to have the land ready and the foundations, if not the elevations, of the chief buildings well and truly laid to welcome him on his return.

Wembley Park, the site chosen, is quite easily accessible from London, as the Metropolitan Railway, with connections everywhere, goes straight down. If the journey is slightly longer than to Olympia it is more direct—at least for this part of London. This is important, since we are told that the Exhibition is not to be an ordinary temporary one, only open for six months and then pulled down or sold to the highest bidder. The buildings are to be permanent. They will be built of steel and concrete, and designed to suit the requirements of those bodies that will occupy them during the Exhibition.

For example, the main block of buildings, which will house the Exhibition from the United Kingdom, will become the permanent home of the British Industries Fair. The great sports ground which we shall require for the inter-Imperial sports during the Exhibition is to be designed to provide the finest football and athletic ground in the world, accommodating 125,000 spectators and seating 35,000. This ground will become the permanent home of the Football Association. Their principal matches will be played upon it, including the final of the Cup Tie. It has also been let to a number of important athletic Associations throughout subsequent summers. Sport and play, therefore, as well as work, will be leading features, and thus benefit both brain and pocket if the scheme is made possible.

Since this is the idea, and a very good idea too, it is to be hoped that the tropics and sub-tropics will come forward and support the Executive Committee not (let us whisper) merely for the benefit of the Exhibition itself, but mainly to drive home to the people in this country and of the world in general the goods they produce and what advantages they offer over others as raw materials.

To help in this, I have already suggested to the Executive that with cacao, and indeed with all tropical products when possible, representative or "type" samples shall be sent over for a separate exhibit as well as those for the collective exhibit, as with the never-to-be-forgotten Gold Coast exhibit at the Rubber and Tropical Exhibition last June. I have urged this because then sections in a separate room or pavilion can be entirely devoted to such samples of cacao, rubber, cotton, coffee, coconuts, vegetable oils, &c., and allow these to be so arranged that buyers and trade experts can examine and discuss them undisturbed by the general public, who, whilst still able to visit such a section, would not be attracted by them as by the glint, glory and glamour (and yet the great value and wonderful utility) of the main pavilions.

Without such a section those whom we want to handle and examine the exhibits could not do so. "Please do not touch" must apply to all. If exceptions can be made, the mind must still travel from one pavilion to another (you cannot drag the samples round with you, for think what a dismantled lot of counters there would be) instead of having everything under your eye and in your hands in one place. To enable this to be done will cost practically nothing if arranged for at the start; it only means duplicate samples being put up and sent across instead of only a single set.

All such exhibits, replenished from time to time, could then become part of the permanent fair which, if properly worked, will undoubtedly bring immense benefits both to buyers and sellers, those who produce in the tropics and those who consume, as manufacturers, on this side.

Once it is realized what an easy run it is to reach Wembley, this section will be well patronized if the "stuff" is there to draw visitors and make it worth their while to attend. To do this we must ask the tropics to help, first the Exhibition; secondly, would-be buyers; thirdly, and not the least important, the producers themselves.

Indian Timbers and Paper-making Materials.

INQUIRIES into the possibility of increasing the utilization of Indian timbers in this country and of making use of Indian paper materials have been carried out in connection with the Indian Trade Inquiry undertaken by the Committee for India of the Imperial Institute, and the reports have just appeared in a volume published by Mr. John Murray under the title "Reports on Timbers and Paper Materials" (price 4s.). We hope these reports will be widely read; they deserve attention, and when possible trials should be made to carry out some of the ideas described or suggested.

Hitherto the exports of timber (other than teak) from India have been relatively small, owing chiefly to the existence of a large local demand. It is considered, however, that there would be an opening for an extended export trade to the United Kingdom in certain hard woods, which would be of value for decorative and other purposes, and are at present little known in this country. The characters and uses of a number of such timbers are described. The attention given to these matters at the June exhibition in London shows that, properly organized, an increased trade could be and should be done in such woods, especially now when furniture or anything made of wood costs so high.

In the section on paper materials, a general statement is given as to the world's pulp and paper-making industry, special reference being made to the position in India. Details are included as to the possibility of utilizing Indian bamboos and savannah grasses for paper making, and the opinion is expressed, and confirms what we have already claimed, that in these two materials India possesses valuable resources which occur under circumstances not unfavourable for their commercial development. It is considered that the immediate aim in the development of an Indian paper-pulp industry, which should receive every encouragement from the Government of India, should be to reduce, and finally to replace (as far as possible) by Indian supplies, the large amount of pulp and paper imported into that country. It is believed that the replacement of imports by Indian produce would be quickly followed by a surplus production which would be available for export.

We discussed the above, and also Mr. Raitt's paper on "Bamboo for Paper," at length in May. The

opinion of Dr. Henry Stevens, whose excellent work in connection with the Rubber Growers' Association, is inclined to make us forget that he is a leading authority on paper-making materials, was also invoked by us after the April issue had been published.

As regards tropical products for paper-making, we were told, the usual trouble is that there is so much pithy matter and other non-paper-making cellulose, that the actual fibre cannot be economically extracted, there being in proportion so little of it. If, however, use could be made of this soft cellular tissue, the fibrous residue could be used for paper-making at a profit. Reports speak of experiments having been made with fermenting the soft cellular tissue for the production of power alcohol. On this basis it might be possible to interest capitalists in tropical production of cellulose, paper and alcohol, and so place the industry on an assured and sound basis.

Referring back to p. 70 of our May issue, where we call attention to the paper by Mr. Raitt, on Bamboos for Paper-making, and also a paper contributed by Mr. Anjar to the *Business World* of Madras, entitled "A Plea for more Paper Mills in India," it may be remembered that we put certain queries at the end. Some of these Mr. Raitt has been good enough to reply to as follows, but readers must refer to the May issue to ascertain the queries we asked and the circumstances that caused us to do so. The figures in brackets refer to the question we put, each of which carried a number.

In the latter part of 1919 or early in 1920, I do not remember the precise date, writes Mr. Raitt, when the shortage of pulp was being actively discussed in the London press, a letter appeared in the *Times* from Sir William Schlich, late Professor of Forestry at Oxford, and formerly Inspector-General of Forests in India. In his letter he referred to an area known to him measuring about 18,000 square miles, which was, practically, one solid block of bamboo. I have been through that area, and can confirm Sir William's statement. If fully exploited, that area could yield 8,000,000 tons of pulp per annum (the world's consumption being about half as much again, or 12,000,000 tons p.a.), and yet this area is but one of several. As if to answer your fourth query concerning roads and transport, it happens that the big area is intersected with a network of rivers and creeks which supply the roadways you ask for. Dragging paths to the river-banks are a negligible item; they are made by the bullocks themselves as and where required.

With resources like these you will understand that we are not interested in the planting of bamboo or its intensive cultivation. It will be a sorry day for the paper industry when it has to come down to cultivating its own raw material. It has never done so yet, and I do not think that it ever will stand cultivation costs.* Its foundation is waste, either Nature's or man's, for which there is practically no other use nor competition. Even spruce when introduced for wood-pulp in the 'seventies was a waste. The present troubles of the wood-pulp

industry are largely due to its having ceased to be a waste in the sense implied [6].

Provided the root-stocks are not weakened by over-cropping they go on reproducing throughout the seedling cycle of the species, which may be anything from thirty to sixty years. In the case of bamboo growing in clump formation, with rotational cropping fixed at, say, four years apart, you cut one-fourth of the clump each year. Species growing in dense thickets covering the whole ground would be cut in swathes through it, the width of the swathe and of the masses left between them being regulated according to the rotation fixed on. You do not therefore abandon an area, after cropping, for the whole period of rotation [see questions 1, 2, 3].

Prices and values are ticklish subjects to tackle under the present vague conditions of industry, but I shall risk putting the cost of a complete plant for 10,000 tons unbleached pulp per annum, erected in Burma, at £300,000 to £350,000, working capital included [see your question 4]. The estimated costs of production given in my lecture were not "four to five times" the old (pre-war) rates, but only about twice, viz., £16 to £18 per ton unbleached, f.o.b. British ports [see question 7]. Freights are considerably down since that estimate was made. Selling value I did not refer to. These would naturally be as much as the seller could get and the buyer be willing to give over £16 to £18.

* * * * *

As many others will do, we beg to thank Mr. Raitt for the above. When those large outputs of pulp are made from bamboos, it will be owing, very largely, to his efforts that they will be indebted for their being.

Coffee Notes.

KENYA AND ITS COFFEE.

THE number of our readers in East Africa continues to increase, and all, so far, are either planting coffee or about to do so, whilst sisal and cotton also receive much attention. We have had two letters from there which will be published later on. Meanwhile new men continue to go out and write thanking us for information given, which we wish we could feel was half as useful as the thanks received are grateful and gratifying. Those settled on the spot seem quite satisfied that they will make a "do" of it, and this, we are all the more pleased to hear, as the work to such men has lost the glamour of adventure and they are now fighting with naked fists and like it. They still say all goes well.

MR. LE POER TRENCH IN GUATEMALA AND COSTA RICA.

We are moved to say the above as a timely and useful report has come to hand from the Department of Agriculture of the Colony and Protectorate of Kenya concerning the visit that their Senior Coffee Officer, Mr. A. D. le Poer Trench paid to Guatemala and Costa Rica to investigate the methods over there for cultivating coffee and fighting and overcoming the diseases and pests which are attacking the trees. Judging from the amount of time that we have spent absorbing the contents of this pamphlet when we

* We certainly do not see why, unless India or elsewhere can keep supplies going "on tap" from natural sources.

should have been writing on oil-palms or how to make rubber sell at 2s. per lb., we feel that men actually growing coffee will be more than delighted to possess a copy. Running into 19 pages, exclusive of 14 pages devoted to illustrations (some of which we think could have been brought out more plainly by the printer, we trust ours is an exceptionally poor print), the pamphlet is issued from a Nairobi press, but a note to the Director of Agriculture at Nairobi, Kenya Colony, will no doubt bring a copy. Here again no price is given. May we suggest for the benefit of the funds of the local Department, as well as to encourage the public to be less backward in securing copies of such valuable reports (there being some in this world who will *not* take something for nothing) that a fair charge, including postage, be made for all such publications and that the same be printed on the cover.

JAMAICA BLUE MOUNTAIN COFFEE SELLS AT 227s.

If you refer to p. 141 of our September issue you will see in our general market report that the celebrated Jamaica Blue Mountain coffee has recently been sold at such prices as 223s. and 225s. 6d. We asked Mr. Mumford, head of the coffee department of Messrs. Lewis and Peat, Ltd., who made the sales, whether this constituted a record; so far as we know it does, and he confirms our belief, except with regard to a small parcel of peaberry Blue Mountain, which sold about the same time up at Liverpool at 227s. The same demand in London also exists up at Liverpool.

In face of such prices, we note with increased interest from Mr. le Poer Trench's opening lines that *C. arabica* is known in East Africa as "Blue Mountain." Very little so far seems to have been grown, but where some has been planted at very high elevations, the difference in growth and general appearance was very much in favour of the Blue Mountain kind, hence it has become very popular.

Owing to the unsettled conditions on the Continent, there has been no demand for Maragogipe coffee, and this has caused Costa Rica to plant Arabica. When Austria, the best market for Maragogipe (which came from Brazil) settles down, one wonders whether it will take Maragogipe again or go to Costa Rica Arabica, as we feel (if it does) that Austria should prove a good market for East African Arabica, as by that time Kenya Colony should be putting up some supply.

THE DIFFERENT VARIETIES.

Bourbon, said to come from true Mocha, and Coffee robusta are also discussed, the latter very fully, sufficiently so for one to plant from; seed selection, lining, spacing, holing, &c., all being described in turn as carried out in Costa Rica, whence the plants came from Java. In Guatemala, we are told, the triangular system is in use for planting at 12 by 12 ft. against the same method at 11 by 11 ft. in Costa Rica.

Number the illustrations as we have done, and you will find that fig. 3 is a diagram showing a four-stemmed tree which merits attention. Fig. 6 shows the *agobiada* (lit. bent over) method from Guatemala to avoid capping, and fig. 7 shows the second stage, i.e., the bent-over branch rigid and now immovably

at right angles to the trunk, whilst figs. 8 and 9 show *agobiada* trees covered with leaves, the second one being a four-year-old tree. Fig. 12 is the plan of a coffee-washing channel, we believe, from Costa Rica. Fig. 19 shows a tree which has yielded 250 lb. of cherry coffee. Judging by its height, it does not look to have been capped or bent over.

CAPPING COFFEE V. THE AGOBIADA SYSTEM.

"In Costa Rica the capping system is carried out," Mr. Trench explains on p. 5. "The practice is to cut off the top part of the stem of the young plant when the latter is about 12 to 15 in. high. This is done about three to four months after they are planted out (we are not told at what age the planting-out is done) and have recovered from the transplanting. Some planters, however, advocate capping the same day as the transplanting is done (making us all the more sorry that we are not told when this is), if there are two or more pairs of primaries on the plant. The reason is to lessen the function of the roots which supply water to the leaves and food to the plant. Two shoots will grow below the cap from opposite sides of the internode; the buds make their appearance in the axils of the leaves, and thus two vertical stems are obtained from the shoots. These vertical stems will, in their turn, be capped when about 24 in. in height, and the process can again be repeated according to the height of the tree desired. The result is a four-stemmed tree with numerous fruit-bearing, lateral branches. When the tree commences to bear a fair average crop the weight of the berries bends the branches outward, and this facilitates the picking.

"In Guatemala," it is explained on p. 7, "the capping system is still carried out by many of the planters, but the new method, known as *agobiada*, literally bent over, has been in operation for fifteen years, and is becoming very popular. The object of this method is to avoid capping so as not to encourage the growth of secondaries.

"Planters who have adopted this system claim that the chief advantages it has over capping are:—

"1. It requires less labour for pruning and handling.

"2. The tree is more pliable and easily bent, hence gives extra facility in gathering the crop.

"3. The formation of old wood is avoided, so there is less chance of the dreaded disease *Phytophthora vastatrix* attacking old trunk stems." Details are then given of how the process is carried out; it is all very interesting.

(To be continued.)

Where is the Report of the Indian Sugar Committee?

DISAPPOINTMENT has been expressed on several occasions during the last week or two at the failure of the much-looked-for report of the Indian Sugar Committee to reach London up to the time of writing, writes the special (sugar) correspondent of the *Confectionery Journal*.

We are all hoping that copies will come to hand during the coming week (ending October 8th), and if so, that they will be in the hands of those fortunate enough to receive copies by the time they read these notes.

Not having received a copy of the report, we took the page containing the above article and called on Mr. D. T. Chadwick, Indian Trade Commissioner in London, to see if he had received one. He told us that he had not, and seemed unable to say when it would arrive.

Leaving the report to wend its weary way, crawling like a boy unwillingly to school, we would just like to call attention to the following paragraph in the *C.J.* which follows on the short one already quoted:—

“In anticipation, therefore, of its receipt, may I be allowed to call attention to the case of sugar production throughout the world in general and throughout India in particular, as it appeals to me to-day, for the even flow of supply and demand in this raw material, as in many others, is bound to prove disappointing for some time to come, both to producers and consumers, but especially to producers. Those knowing how short the world is of sugar if the consumption were only normal are mystified at the check to the outflow of visible supplies which is only too apparent in Cuba and elsewhere. Unlike ourselves at the consuming centres, they do not see clearly the many obstacles that are obstructing the rush of orders at almost any price which all were watching for eighteen months ago.”

The article then gives details of these obstacles, especially fluctuations in the value of the rupee, that are standing in the way of progress. Finally, it concludes with the following paragraph, the last sentence of which especially deserves to be noted and remembered. Here it is:—

“The above may seem of no importance to the manufacturer, and especially to the retailer of sugar confectionery, but it would be a mistake to ignore so important a document to the sugar world at large as the now-on-its-way Report of the Indian Sugar Committee. I hope everyone will either study it in the original or pay careful attention to the press comments on what it has to teach us. At the moment we are overdone with sugar because the world cannot and will not buy retail at present prices, but this will change. Not long ago quotations for 96 per cent. Cubans were almost at 14s., then they went to over 20s. (22s. 6d., I believe), now they are down to 18s. spot and 15s. 4½d. for the middle of March. If the trade wants sugar at a reasonable, equable rate, as they do, they must not stand aloof of the strenuous and costly efforts being made by India and elsewhere, first of all to supply their own wants, and then to help exports to non-producing countries. Every ton more sugar produced in India helps us; let us all, therefore, do our best to help India go ahead with her sugar production.”

We sent a copy of the article to Sir David PRAIN at Kew, who acknowledged it, saying: “The information is very interesting and may be most useful. We have not had a copy of the Committee’s report either.”

Rubber and Cotton Notes.

PRICES AND STOCKS.

THE market during the week ending October 6th remained steady, with prices for Standard Crêpe and Sheet at 9d. to 9½d., showing a rise of ¼d. per lb. Off grades also, Messrs. Lloyd, Matheson and Carritt tell us, were in demand. During the nine months, January-September, 59,250 tons of rubber were landed in the Port of London, or 21,282 tons more than delivered (37,968 tons). During the week that followed, ending 13th, the same steadiness around 9½d. was observable for best kinds, also the good demand for off grades. Singapore cabled prices equal to 10½d. in London for Standard Crêpe and 11d. for Sheet, against 10½d. and 10¼d. the week before. On September 13th, according to Messrs. L., M. and C., prices were as under:—

Spot quotations—	1921 Oct. 20th.		1921 13th.		1921 6th.		1920 14th.	
	s.	d.	s.	d.	s.	d.	s.	d.
Smoked sheet (F.A.Q.)	...	0 9½	...	0 9½	...	0 9½	...	1 4
Crêpe (standard quality)	...	0 9½	...	0 9½	...	0 9½	...	1 6½
Para	1 2	...	1 1½	...	1 1½	...	1 6

Forward positions—	Smoked Sheet		Crepe	
	s.	d.	s.	d.
1921 October	...	0 9½	...	0 9½
„ November	...	0 10	...	0 10
„ November—December	...	0 10½	...	0 10½
1922 January—March	...	0 10½	...	0 10½
„ April—June	...	0 11½	...	0 11½

Stocks—		Tons		Tons	
Plantation, London	...	Oct. 8th, 1921, 70,929	...	Oct. 9th, 1920, 37,052	
Para, Liver-pool	...	1st, „ 750	...	1st, „ 550	
Total		71,679	Total		37,602

Vegetable Oil Notes.

NEWS OF MR. H. C. SAMPSON.

WE understand that Mr. H. C. Sampson, whose book on the Coconut Palm, especially its root growth, we are awaiting with considerable impatience and expectation, has been appointed Director of Agriculture in Madras, where he has done such good work as deputy-director. With Mr. Sampson at the head of affairs, we may perhaps see the magnificent coconut possibilities of Southern India far more fully developed and the Moplahs and other races around there more prosperous and contented. German agitators can do much, but empty stomachs can do more, to create trouble. We remember hearing so much of what Madras was going to do to teach the world how to grow coconuts that we, like most people, have been somewhat amused at the results. We have not even seen the proverbial mouse crawl out so far. We welcome the news of Mr. Sampson’s appointment, and trust it is true, as under his care there should be widespread progress.

OCTOBER.

COPRA PER TON—SPOT.

				London				Marseilles		Rotterdam		Hamburg	
		F.M.S.		Ceylon				F.M.		Ceylon		Ceylon	
		£	s.	£	s.	£	s.	£	s.	£	s.	£	s.
Oct.	19	...	27 10	...	28 10	...	26 10	...	28 10	...	28 10	...	28 10
„	15	...	28 5	...	30 5	...	28 0	...	30 5	...	30 5	...	30 5
„	12	...	29 10	...	31 0	...	29 5	...	31 0	...	31 0	...	31 0
„	5	...	31 0	...	33 10	...	30 10	...	33 10	...	33 10	...	33 10
„	1	...	30 5	...	33 0	...	30 0	...	33 0	...	33 0	...	33 0

COCONUT OIL PER TON.

			Spot		Ceylon		Spot		Cochin	
					For shipment				For shipment	
			£	s.	£	s.	£	s.	£	s.
Oct.	19	...	55	0	...	46	10	...	68	0
	15	...	55	0	...	47	0	...	68	0
	12	...	56	0	...	48	0	...	69	0
	5	...	56	0	...	51	10	...	69	0
	1	...	56	0	...	53	10	...	69	0

OTHER OILS PER TON.

			Castor		Ground-nut		Palm kernel		Cotton		Linseed		Soya			
			Firsts		Crude*		Crude		seed		Spot		Bean			
							Hull		Crude				Oriental			
							spot		Egypt				Barls.			
			£	s.	£	s.	£	s.	£	s.	£	s.	£	s.		
Oct.	19	...	57	0	...	55	0	...	40	0	...	26	5	...	39	10
,,	15	...	57	0	...	55	0	...	41	0	...	30	0	...	40	0
,,	12	...	57	0	...	55	0	...	43	0	...	30	0	...	45	0
,,	5	...	57	0	...	55	0	...	45	0	...	30	0	...	46	10
,,	1	...	57	0	...	55	0	...	46	0	...	31	10	...	47	10

SEEDS PER TON.

				Linseed				Cottonseed		Castor		Ground		Soya				
				Calcutta		La Plata				Bombay		Nuts†		Beans				
												Hull		Manch.				
				£ s.		£ s.		£ s.		£ s.		£ s.		Spot				
Oct.	19	...	Nom.	...	13	5	...	11	5	...	21	10	...	24	0			
	15	...	18	0	...	15	0	...	12	0	...	21	10	...	25	0		
	12	...	N/Q	...	14	0	...	14	0	...	22	0	...	27	0			
	5	...	N/Q	...	15	5	...	14	10	...	21	10	...	N/Q	...	15	0	
	1	...	18	5	...	15	10	...	14	10	...	21	10	...	N/Q	...	15	0

CAKE.

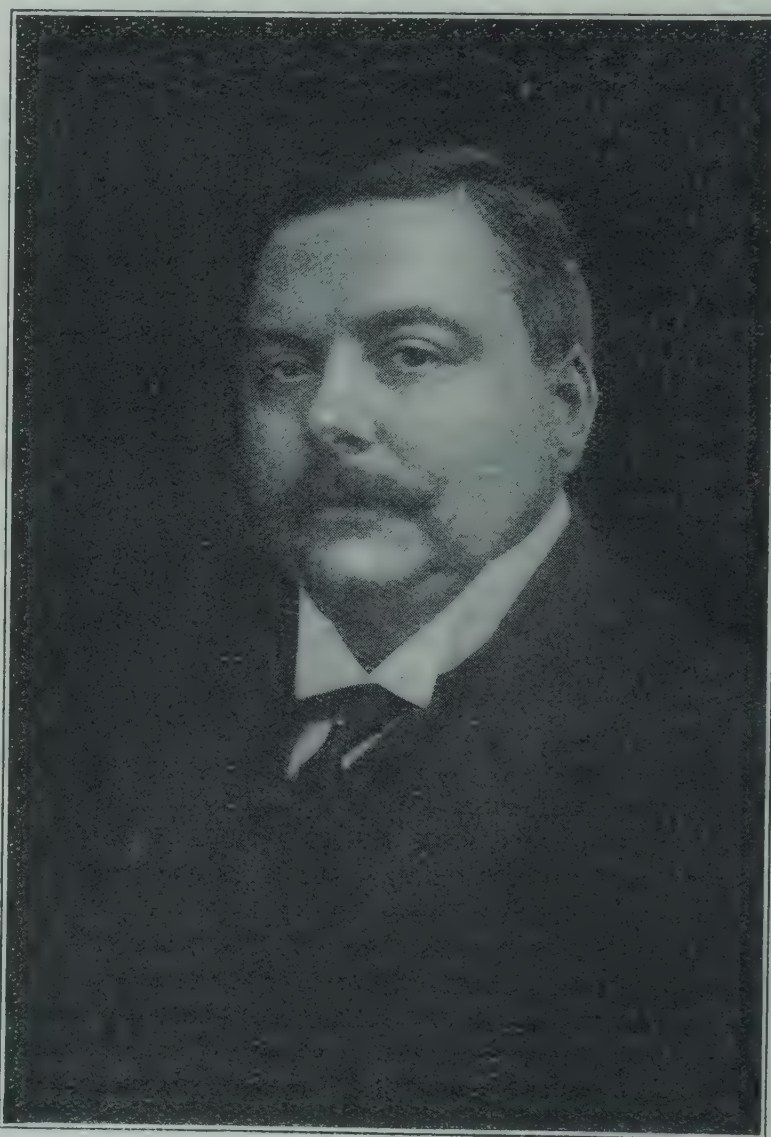
			Linseed		Cotton		Coconut		Ground Nut ³	
			London Made		Lond. Egypt					
			£	s.	£	s.	£	s.	£	s.
Oct.	19	...	12	10	...	9	0	...	12	10
	15	...	13	0	...	9	0	...	12	10
	12	...	13	10	...	9	10	...	14	0
	5	...	14	15	...	9	10	...	14	0
	1	...	14	15	...	10	15	...	14	0

* English crushed, naked. † Coromandel. ‡ Decorticated. NQ No Quotation.

development of tropical agriculture in the Empire at large.

The necessary document signed by the subscribers to the Memorandum of Association having then been read, Sir Arthur Shipley was, on the motion of Mr. E. R. Darnley, seconded by Lieut.-Colonel Sir David Prain, unanimously elected Chairman of The West Indian Agricultural College. Sir Arthur Shipley, having taken the chair, moved the appointment of Lieut.-Colonel Sir David Prain to be Vice-Chairman, and the resolution was seconded by Mr. Moody Stuart and also carried unanimously.

Sir Francis Watts was then, on the motion of Sir



By courtesy of the W.I.C. Circular.

SIR ARTHUR SHIPLEY, G.B.E., Sc.D., F.R.S.

Chairman of the West Indian Agricultural College.

Norman Lamont, Bart., seconded by Sir Frederic Hodgson, appointed Principal of the College. Mr. Algernon Aspinall ("Our Friend" in August) having then been appointed Secretary, the Governing Body proceeded to discuss the various matters on the agenda, which included the selection of an Architect for the College Buildings. From a number of competitors, Major H. C. Corlette, O.B.E., F.R.I.B.A., was unanimously elected, and it is understood that a meeting is to be held at an early date to consider the question of the erection of the College buildings.

The Governing Body of the West Indian Agricultural College as at present constituted is as follows:—

The Trinidad (W.I.) Agricultural College.

CONTINUING the remarks on the above College in our last issue, we now have pleasure in calling attention to the following extracts from the *West India Committee Circular* of September 29th when discussing the inaugural meeting:—

Mr. Edward Wood, M.P., Under-Secretary of State for the Colonies, attended the inaugural meeting of the Governing Body of The West Indian Agricultural College which was held at the Colonial Office on September 21st. Presiding at the outset, he expressed his hope and belief that the enterprise would mark an epoch in the history of the West Indies, prove of far-reaching benefit to their agricultural industries and general interests, and exert a great influence upon the

Nominated by the Secretary of State:

Lieut.-Colonel Sir David Prain, C.M.G., C.I.E.,
F.R.S.

Sir Francis Watts, K.C.M.G., D.Sc.

E. R. Darnley, Esq., B.A., B.Sc.

Nominated by the Colonial Governments:

Sir Norman Lamont, Bart., Trinidad.

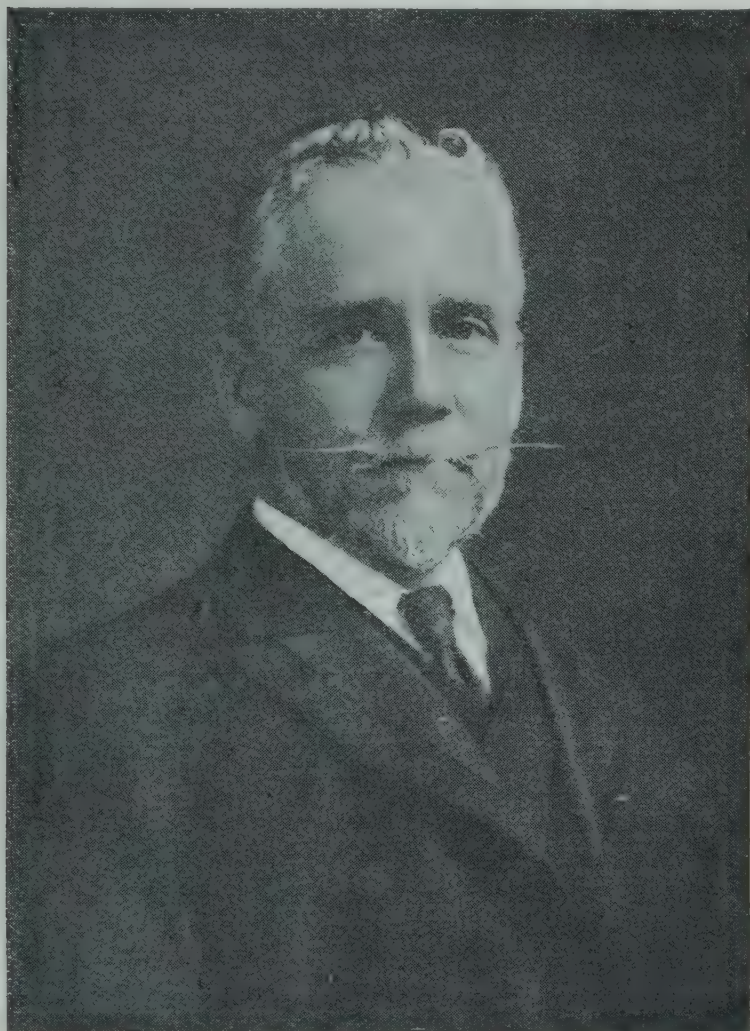
G. Moody Stuart, Esq., Trinidad.

E. A. Robinson, Esq., Trinidad.

S. C. Thorne, Esq., M.C.P., Barbados.

Hon. J. T. de la Mothe, The Windward Islands.

A. E. Collens, Esq., F.I.C., F.C.S., The Leeward
Islands.



SIR FRANCIS WATTS,
Principal of the West Indian Agricultural College.

Nominated by Academic Institutions:

Sir Arthur Shipley, G.B.E., Sc.D., F.R.S., Cam-
bridge University.

Professor F. O. Bower, Sc.D., LL.D., F.R.S.,
Glasgow University.

Professor J. B. Farmer, M.A., D.Sc., F.R.S., The
Imperial College of Science.

Nominated by Contributing Industries:

W. H. Himbury, Esq. (Cotton).

W. Scott Heriot, Esq., A.M.Inst.C.E. & M.Inst.M.E.
(Sugar Machinery).

Co-opted:

Mr. Robert Rutherford.

The Hon. Gideon Murray, M.P.

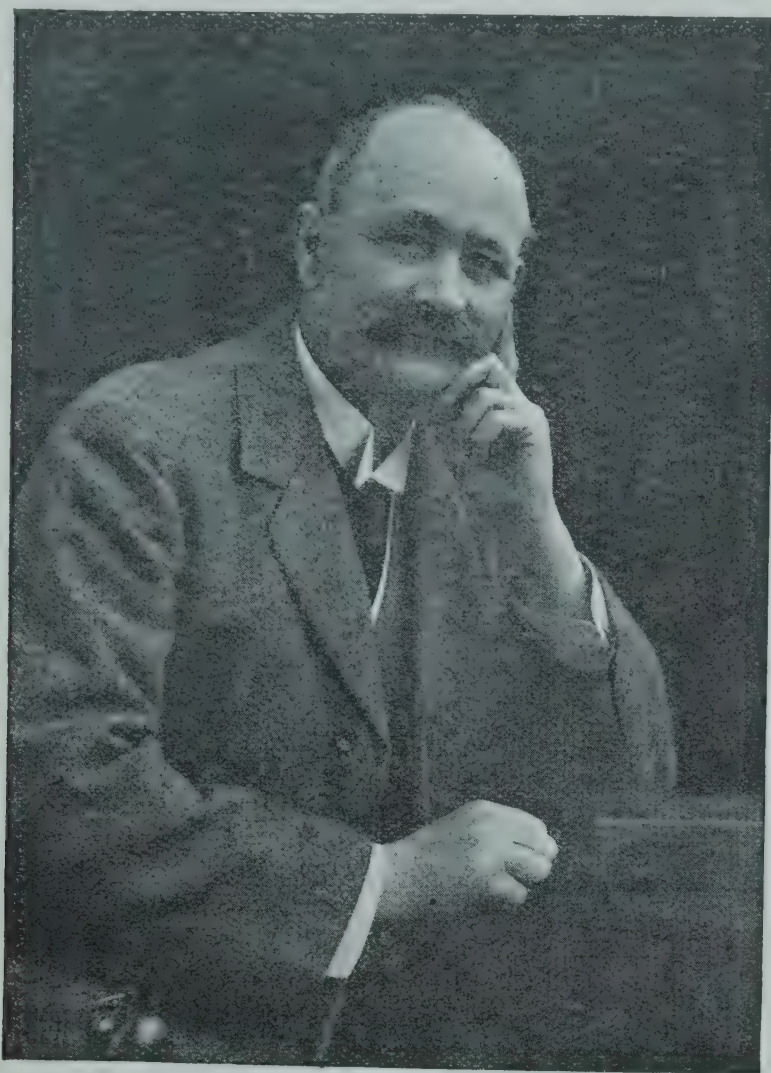
The West Indian Agricultural College is now in-
corporated under the Companies Act, 1908-1917, as a
"Company limited by guarantee" with licence of the
Board of Trade to omit the word "Limited" from its
title. The principal objects, as defined under the
Memorandum of Association, are:—

"To found, establish, carry on, maintain, and con-
duct an Agricultural College in the British West
Indies, to be called The West Indian Agricultural
College, to promote the study of agriculture and other
branches of learning; to provide instruction in the
principles of agriculture, and in the cultivation and
preparation for market of tropical produce of every
kind, including sugar and its by-products, rum and
molasses, cacao, coffee, cotton, coconuts, rice, citrus
and all other fruits, dyewoods and all vegetable,
mineral and marine products of the British West
Indies, including British Guiana and British Hon-
duras; to make full provision for the prosecution of
research and for the training of scientific investigators
in matters pertaining to tropical agriculture amid suit-
able surroundings, and for creating a body of British
expert agriculturists well versed in the knowledge of
the cultivation of land in the tropics, of chemists, of
mineralogists, and of scientific advisers possessing an
intimate knowledge of the means of combating pests
and diseases, and to found, establish, carry on, main-
tain and conduct, and amalgamate with other colleges
or institutions of a similar character and having objects
similar to any of the objects of the Association, and
which may prohibit the payment of dividend or profit
to the members of the Association is prohibited by this
Memorandum of Association."

Apart from the above, the usual wide powers of a
general kind are also taken. The Articles of Asso-
ciation provide for the establishment of a Governing
Body, the appointment of the principal lecturers,
teachers, &c., Finance and Executive Committees,
the latter of which is to be in the Colony in which the
College is situated, and an Academic Board, and
defines the procedure to be adopted at meetings, &c.

And thus ends the second volume of this most
important and far-reaching undertaking. The third
volume will start with the College erected and ready
to begin work, residential quarters, laboratories, &c.,
being already in being and at work. This volume will
continue indefinitely and do widespread good as its
principals, as editors-in-chief, write up its history.
We trust suitable notices will be included somewhere
of Sir Francis Watts, Professor Dunstan, and especi-
ally of Mr. Moody Stuart, recording their help to start
the agitation which has achieved such gratifying
results.

SIR ISAAC PITMAN AND SONS, LTD., of Parker Street,
Kingsway, W.C.2, recently published a most handy
little book (weighs just 7 oz.) on "Sulphur and Allied
Products," by Harold A. Auden, M.Sc., D.Sc.,
F.C.S. It contains just 100 pages, has 27 illustrations,
and costs 3s. Anyone using sulphur in any shape or
form should have a copy of this book. It says much
in very little space, although we are reminded in the
Foreword that "Whosoever shall attempt to describe
Sulphur in a most accurate manner will have need of
abundance of Paper" (*Miraulum Mundi*—1656).



"Tropical Life" Friend.—No. 196.

MR. R. A. BELLWOOD.

Vegetable-oil Machinery Expert.

WE agree with "Our Friend" this month when he claims that never was there a time when the future of (vegetable) oil-extraction and refining machinery stood at the meeting of the roads—to success or failure—as it stands to-day. Taking the industry as a whole, nothing can keep it back, it is bound to go ahead, but to the individual firm this very strength in the onward push, a strength almost making the push into a rush, is a source of danger if, for any reason, they get out of the course of the main current and only encounter the mud-banks or the rocks in place of the current that bears those able to ride it to certain success.

The war has taught us much; certainly how to insist that obstacles can be overcome, and that, because you cannot or do not make a certain appliance or machine not to claim that it cannot be made, but rather that the sooner you start to make it yourself the better—for you.

The firm—Messrs. Rose, Downs and Thompson, Ltd.—with which Mr. Bellwood has been connected for so long is not a mushroom; established in 1777, very nearly 150 years ago, even the present directors must have seen many changes in their time, and if records have been kept, as no doubt has been the case, what a history the managing director, Mr. Charles Downs, could write on such a subject as "The Vegetable-oil Machinery of Three Centuries," i.e., of to-morrow, of to-day, of yesterday and of many days before. Owen Nares recently suggested in an article he contributed to the *Daily Telegraph* on "The New Woman" that there is nothing new under

the sun, least of all is there a new woman. How easily could Mr. Downs or Mr. Bellwood disprove the first, if not the second assertion. How many new machines for the extraction and handling of vegetable oils must have come and gone, been tried and found wanting, or used and improved, during the last fifty years, much more so during the past 150 years.

But what has been produced during the last fifty years may prove as of secondary importance to what we look forward to being designed during the coming ten or fifteen years. The peculiar circumstances of war-work forced Mr. Charles Downs, as it did all patriotic engineers (who ever heard of an engineer who was not patriotic?) to take up entirely new lines, to make what they never dreamed of making before; and to do, most successfully, things that may previously have been considered impossible. All this has left so much behind in the shape of fresh experience as to what is and what is not wanted and what can and cannot be made to satisfy those wants, that it is certain that those needing oil machinery now and onwards will have far less trouble in getting their wants satisfied, or of feeling that, if success seems elusive for the time being, no rest nor quarter will be allowed until she is caught and forced to do her share, no matter what the machine is expected (by practical men) to accomplish.

"Our Friend's" career has well fitted him for such a fight, and, judging from how he keeps, and his firm keeps, abreast of the times, he does not mean to get side-tracked, but to remain well in the swim outwards to secure success. Having served his apprenticeship—a six years' one—with Messrs. Rose, Downs and Thompson, Ltd., of which five years was spent in the shops and one in the drawing office, Mr. Bellwood, after a spell as journeyman-draughtsman, was eventually appointed chief draughtsman until, in 1900, he was appointed assistant general manager of the firm and a director in 1918. Two years later—i.e., last year—he was made a director of Messrs. Rose, Downs and Thompson (Far East), Ltd., which is of course a subsidiary company with offices in Shanghai and at Hull. During this long spell "Our Friend" has studied solvent extraction and oil-refining, fish manure machinery, dredging and excavating machinery, as well as his main work, which is concerned with oil-extraction by pressure.

President of the Hull Chemical and Engineering Society in 1920-1921, Mr. Bellwood was elected a member of the Society of Mechanical Engineers last year. Still a comparatively young man, he will, we feel sure, become as well known in the more prominent London Institute as he has been up at Hull.

During the war Messrs. Rose, Downs were chiefly occupied with the manufacture of shells. They forged about ten thousand 4.5 high explosive shells per week, 18 per cent. of which they actually finished, the rest going to other engineers to be machined and completed. "Our Friend" supervised the designing of all the machinery needed to forge and machine the shells, all of which were made by his firm, since they could not obtain it from the usual sources. They also, by instructions of the Government, constructed two solvent extraction plants, each to treat 200 tons of palm kernels per week, as well as a third one to treat a thousand tons per week.

Business Notices.

1.—The address of TROPICAL LIFE is MESSRS. BALE, SONS AND DANIELSSON, Ltd., 83-91, Great Titchfield Street, London, W.

2.—All literary communications should be addressed to the Editor, and accompanied by the necessary stamps for their return if not accepted.

3.—All business communications and payments, either for subscriptions or advertisements, should be sent to the Publishers of TROPICAL LIFE. Cheques to be crossed The Union of London and Smiths Bank, Ltd.

4.—The Subscription, which is Twenty Shillings per annum, may commence at any time, and is payable in advance. Life Subscription, £10.

5.—The Advertisement Department is at 5, Great Tower Street, E.C., where all inquiries respecting advertisements, charges, &c., should be addressed c/o the Manager of the Department. At the same time will advertisers kindly note that all copy and blocks for advertisements must be sent to 5, Great Tower Street, E.C., before the thirteenth of each month, failing which, insertion of same in current month cannot be guaranteed.

6.—The Publishers reserve the right of refusing any advertisement, or the matter or "copy" sent in for any advertisement. They would also be glad if advertisers would refrain from using the "powerful" or extra heavy type that some adopt at times. Doing so renders the paper unsightly, and is unfair to the other advertisers as well as to ourselves. If all used such type, no one would benefit; to allow some to do so and not others, would be unfair.

7.—Advertisers are only entitled to three changes of matter in the year of twelve issues, unless (1) they send electros for insertion, or (2) are willing to pay for the cost of setting up the advertisement. Owing to present high cost of composition and printing work we cannot depart from this rule.

8.—Changes of address should be promptly notified.

9.—Non-receipt of copies of the Journal should be notified to the Publishers.

10.—The Journal will be issued on or about the twentieth of the month.

The Managing Director and Editor of "Tropical Life" will be pleased to consider the printing and publishing of useful technical works on Tropical Agriculture, Medicine, or other subjects dealing with the development of our Colonies and the Tropics generally, as well as similar books dealing with Russia, Japan and the East, whether the books are to be published in English or other languages.

Tropical Life.

OCTOBER, 1921.

Vegetable Oils as Fuel.

THE DROTT ENGINES DRIVEN BY PALM OIL.

By a Belgian Correspondent.

SINCE 1900 the possibility of using vegetable oils as fuel in a Diesel engine has been considered by specialists for the production of the motive power needed for the development of industry by the aid of cheaper transport in the Colonies.

In 1910 Diesel had already foreseen the use of vegetable oils as fuel in his engines.

At the beginning of 1919 Mr. Angoulvant, Governor-General of French West Africa, again pointed out the importance of the use of these oils for certain regions of West Africa, if an engine could be designed to allow of their use.

In the meantime the Belgian Ministry of the Colonies had arranged for a competition to be held of mechanical tractors driven by palm-oil or any other vegetable oil produced in the Congo. The trials were to be held at Brussels in 1920, but only one competitor took part. This was the semi-Diesel engine worked with vegetable oils, the use of which has become common now. Let us consider the origin of

this new application, that seems to settle splendidly the problem of motive power in Africa and elsewhere—in the near future throughout the tropics.

Later on a Belgian company, L'Omnium Africain, now known as the Compagnie Générale du Congo, immediately after its foundation undertook to study the use of palm-oil in a motor of the type called semi-Diesel. Tests worked out by men specially experienced in the matter proved that the engine type which complied best with the motive power needs of the Belgian Congo was the semi-Diesel type, i.e., one with slow combustion at constant volume and working according to the two-stroke cycle method.

The engine that proved most suitable for being used with vegetable oils in the tropical colonies was one of Swedish make, sold by Messrs. Nickels and Todsen of Stockholm, under the name "Drott Engine." This engine combined strength with a perfect adjustment.

The necessity of an abundant and cheap fuel being the chief factor of success in the efforts of colonial expansion, such fuel had to be found as well as a producer of power capable of using it. It has been acknowledged that palm oil, as well as most vegetable oils, complied, even without the least preparation, with all the desirable conditions of an excellent fuel and could satisfactorily supply fuel for steam producers, when used in certain special burners, as well as internal combustion engines.

Africa being an inexhaustible source of palm oil, one may easily realize the enormous advantages that this vegetable oil offers in preference to coal, wood, kerosene, &c., all products difficult, and at times impossible to obtain regularly, and then at too high a cost. On the other hand, it was found that vegetable oils, more especially palm-oil, were available anywhere and at an exceedingly low price. Palm-oil, therefore, tends to become the prime favourite for use as fuel for suitable engines in the tropics, where such oil is indigenous.

Let us give a description of the Drott engine driven by vegetable oil.

This engine is of the valveless type, vertical, with either a single cylinder or two cylinders. It has governable water and fuel injection, closed crank case, single fly-wheel, axial centrifugal governor, central lubrication under light controllable pressure, cooling water pump, allowing a complete combustion of the palm-oil without fouling.

As with all the semi-Diesel engines, the starting is effected by means of an oil-heating lamp of the same kind as the ordinary blow lamp. This heats an ignition ball placed above the engine which, in its turn, melts the palm-oil parts to be introduced and, at the same time, warms the pipings and delivery pumps. As soon as the engine is started, a specially patented device maintains the palm-oil in a liquid and limpid state and at a sufficient temperature to allow its injection into the engine.

RESULTS OF THE TESTS.

During the first tests it has been officially ascertained that the consumption of palm-oil was but 20-25 per cent. higher than that of mazout, the palm-oil consumption per hour with a normal load being 420-335 grm. for a normal power of 6-120 h.p.

It has also been shown:—

1°.—That fouling was absolutely avoided, and that the burnt products coming out of the exhaust pipe did not present any coloration, which is a certain proof of complete combustion.

2°.—That the palm-oil remains perfectly fluid in all the fuel distribution organs when the engine was working, and does so after a stoppage of a quarter of an hour even under European temperatures.

3°.—That starting was possible with palm-oil only, without the introduction of any carburetting substance, as soon as the ignition ball was brought to the required temperature and the fuel became sufficiently fluid.

4°.—That the fusion and filtration of the palm-oil were effected with sufficient speed to ensure a constant supply from the fuel pump.

5°.—That with an unchanged load the speed remained perfectly regular.

6°.—That with a load that varies the speed came easily back to the normal, in consequence of the very great sensitiveness of the centrifugal governor, and that immediately the exhaust smoke was again made clear like tobacco-smoke.

7°.—That the quantity of injected water varied with the charge and prevented the hammering which unavoidably occurs if it is completely suppressed.

8°.—That the water injection made the running comparable with that of a steam engine; that it imparted more "suppleness" to the engine, rendered the running smoother, lessened by its expansion the shock of the gas detonation, thereby reducing wear and tear of the parts and increasing the life of the engine.

With regard to the efficiency of the motor, it was found that the mechanical efficiency of the engine may vary between 80 and 82 per cent., and that the calorific efficiency is equal to 20 per cent. of the brake horse-power, which varies from 6 to 120 h.p.

The working of the engine may be compared with that of a good petroleum engine.

The water injection proved satisfactory.

The regulation of the water and palm-oil injection was good.

The consumption of lubricating oil was very low, about an average of 5 grm. per h.p. for the engines under 25 h.p., and of 10 grm. of those above 25 h.p. with oil of good quality.

THE PRIME COST PER H.P.

As to the prime cost of the motive power obtained, assuming it to be a Drott engine of 120 brake h.p., the palm-oil consumption of this, with a normal load, is approximately, 335 grm. per h.p., this may be calculated as follows:—

If the fuel costs fcs. 0.25 cts. per kgr. (average price), the fuel consumption per hour will be:—

120 h.p. x 0 k 335 x 0 fr. 25 cts. = 10 fcs. 05 cts., or 100 fcs. 50 cts. for ten hours working.

Adding 10 per cent. on an average per day for cost of the staff, maintenance, lubricating oil, sinking fund on capital, interest and other expenses, the motive power per hour and per h.p. would be less than 1 franc, which is very cheap compared with the other fuels and methods of power production in Africa.

Experiments tend to show, from all accounts, that palm-oil compared with mineral oils possesses numerous advantages in the tropics with regard to supply, manipulation and use in industrial or domestic furnaces and engines that will be greatly appreciated when thoroughly understood. This being so with palm-oil, one wonders how it will be with coconut or other vegetable oils. We have still to receive information concerning them.

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Progress in Agriculture on the Gold Coast.

THE staff of the Gold Coast Agricultural Department has in the past six months been increased from nine to thirty officers, including three African assistant superintendents. A provincial superintendent has been appointed for each of the provinces in the colony, one superintendent for Ashanti, and one for the Northern Territories. Each of the above five areas has been divided into districts under district superintendents. The Research Department has been strengthened and is starting work on a definite programme of research, with the object of ascertaining the possibilities of the development of certain agricultural products for the benefit of the farmers, and for the increase of trade and the revenue required for the extension and improvement of our system of education.

On July 3rd the Governor opened the Agricultural Conference at Aburi, attended by all the officers of the Department except those on leave and in the Northern Territories. We have pleasure in reproducing a photograph of the group. The object of this Conference was to bring the many new officers of the Department in touch with each other and with Government requirements, thus enabling action on a definite programme to be carried out.

In his opening address the Governor touched on:—

1. The necessity for decentralization, for cutting down reports and correspondence to the utmost possible extent, and for the development of the initiative of individual officers. Mistakes due to over-initiative, though regrettable, are excusable, but mistakes due to lack of initiative are serious.

2. The importance of the Agricultural Department on the work of which depends mainly the prosperity of the country and the necessity of officers securing, by the quality and method of their work, a status in accordance with the importance of the Department.

3. The Agricultural Department is essentially one which should not live in water-tight compartments. The need for its co-operation with the Political Officers and with the Education Department.

4. The necessity of Political Officers obtaining advice from and of assisting the Agricultural Officers in their dealings with the farmers.

5. Future prospects of the cacao industry, and especially of the coming cacao season. With regard to



THE AGRICULTURAL CONFERENCE AT ABURI, GOLD COAST.

Back Row.

1. A. W. Paterson
2. W. Caldwell
3. G. S. Cotterell
4. J. M. Dunbar
5. C. H. Knowles
6. H. J. Horwood
7. W. C. Fishlock

Middle Row.

8. A. A. L. Smith
9. A. E. Evans
10. W. S. D. Tudhope
11. H. E. The Governor
12. A. Ogilvy
13. — Finlay
14. R. H. Bunting

Third Row.

15. A. B. Culham
16. T. J. S. Smellie
17. G. C. Coull
18. H. K. Hewison
19. J. Steele
20. R. Coull
21. — Symond

the former, there is no fear of its future prosperity provided transport and harbour systems are improved.* With regard to the coming cacao season, reports from the whole country show that the crops promise to be unusually heavy, but there is need for more careful and less diverse method of fermentation.

6. The value of introducing better methods of cultivation in order to lessen the area under cacao whilst increasing the yield per tree and per acre.

7. The necessity for encouraging the revival of the oil-palm industry and developing it in every way possible. Necessity for energetically continuing the development which has begun in the past eighteen months of the copra, sisal, hemp and rice industries. Necessity for renewed efforts in developing the Shea-butter, ground-nut, kola, tobacco and sugar industries.

The Conference lasted for a week, and the above subjects were thoroughly discussed. Mr. A. E. Evans' paper on "The Value of Itinerant Instruction" specially appeals to us both on account of the subject

discussed, as well as for the long practical experience of the reader of the paper as Chief Travelling Instructor.

Meanwhile, according to reports, satisfactory progress has been made in developing the rice, copra and sisal industries. The work of reviving the oil-palm and starting the sugar-cane industry has reached the stage at which co-operation between the Government and the people can be confidently expected at no distant date. Crops for the coming season are so promising as to warrant the belief that there will be more food available for consumption than at any previous period in the history of the country.

THE first function of the Gold Coast Civil Service Dinner Club, the (London) *Oils and Fats Record* tells us in its October issue, was made memorable both by reason of the presence of the Secretary of State for the Colonies and of the substance of the speech he made. Mr. Churchill's references to the Crown Colonies were indeed more eloquent than even the words he used of the new position occupied in the opinions of the Colonial Office by the Crown Colonies—those Cinderellas of the Empire.

* This has been dealt with in the opening paragraph of the cocoa market report, p. 141, last month, which was written before we had read this communication.

The International Tea Congress and Exhibition at Java.

RECENT advices from Buitenzorg (Java) tell us that very wisely—it has been decided to postpone the above Congress and Exhibition until the general economic situation throughout the world has much improved.

This is as it should be. When such a Congress is held, engineers interested in tea machinery as Messrs. Marshalls of Gainsboro, Davidson and Co. of Belfast, Begg, Dunlop of London and India, Walker Brothers of Ceylon, and many others will have much they can tell us about of improvements introduced and new appliances placed on the market. The Blackman Export Co. of London, with their fans, have certainly made considerable strides, yet none of these firms are quite ready for such a Congress, especially over there in Java. We should have had them at the Royal Agricultural Hall in June had they been ready. When Java does have its Congress and Exhibition, we all want it to have a representative gathering, as then you learn so much more. It is a selfish world.

The attention attracted by our leading article in April—when we published Mr. J. W. McKay's notes on "The Improvement of old Tea Estates"—makes one realize how far some of us are behind in such matters. Manuring and stimulating such crops, like many other things, have got somewhat out of date. It is time we had a tea conference, therefore, at which such matters can be discussed, and our knowledge on the subject, as well as on the curing and the drying of the leaves, brought up to date. Correspondence since the Armistice over unsuitable tea chests should draw a gallant show of these necessary receptacles to the Exhibition. On this account, and for other reasons, one hopes that the date will not be indefinitely postponed.

Meanwhile increased interest has been shown in our well-known book by Mr. G. A. Cowie, "The Fertilization of Tea" (2s. 6d. net), one firm near our City office having asked for a hundred copies, whilst speaking of taking more at an early date.

"Tropical Life" at the Play.

WHEN Mr. C. B. Cochran served up "Chauve-Souris" at the London Pavilion as *Zakuska* (which is our way of spelling the Russian equivalent of *hors d'œuvres*), we thought he had given us a full meal for the price charged, but now it seems that since "The Bats" have gone to the Apollo (we trust Porcelaine de Sèvres still forms one of the dainty dishes), we now have a second course at the London Pavilion entitled "Fun of the Fayre," quite a Gargantuan feast this time, including the inimitable Dolly Sisters, who are blown across from the "League of Nations" for a few minutes, and then wafted back again, so that the patrons of the Oxford are not aware of the Peter-Pan-visit they have just been making. What a brain must be there to arrange so perfect an organization so that all goes on without a hitch.

Here at the Pavilion the courses include Alfred Lester, Senorita Trini from Spain, the Frattellini quintette, Morris Harvey and Evelyn Laye. Go and see them and say which of all the girls is the prettiest. It is a close contest, but I back Evelyn Laye. Trini runs her very close, but she lacks Evelyn's dimples. Both are perfect, but the dimples win. Alfred Lester's songs are very up-to-date, we are told, and the costumes even more so. We should have called them strings of beads, but our sight is not as good as it was, so maybe there was some material somewhere and we missed it. But we are not deaf, and we did not miss the music and songs, and they are real good, especially Clifton Webb and June in "Whose Baby." We could say much more but space forbids. If you are bored or overworked go and see "The Fun of the Fayre," and you will soon be all right again. Those who knew what was coming from the rehearsals claimed that "The Fun of the Fayre" would be the most-talked-of play in London and cause "Cairo" to be as mere "Asches" beside it. We agree with that view.

Trade, Politics and Finance.

WE have been informed that Mr. C. Fred Worters, after being associated with Messrs. C. Czarnikow, Ltd., for nearly forty years, has retired as from September 30th last. We wish Mr. Worters long life to enjoy his leisure. He will be missed from the Lane. Mr. L. F. Woodforde will sign for the company by general procuration, and Mr. W. R. Rolfe, their cashier, has been given power to sign delivery orders, endorse bills of lading, warrants, &c.

We attended the 167th half-yearly general meeting of the Colonial Bank on October 13th, and listened to one of the shareholders discuss the Takoradi scheme and the opening up of the interior of the Gold Coast before spending money on the new harbour. (This is also referred to on p. 160 of the Cocoa Market report.) Mr. Wood, the chairman, seemed to be of the opinion that money was badly needed up-country, but whether he wants Takoradi first, or in preference to an improved internal railway and transport scheme we cannot say. We listened with pleasure, however, when he told the shareholders that at the Gold Coast Civil Service dinner, held recently, the Secretary of State for the Colonies (Mr. Winston Churchill) expressed some surprise at the neglect shown by the people of this country in the development of the Crown Colonies, and stated that £200,000,000 could be sunk in ten years with the certainty of getting it all back again very shortly. "We are getting quite accustomed nowadays to thinking in hundreds of millions," added Mr. Wood, "but for myself I should be content to make a start with a tenth of that sum, say, a modest £20,000,000, and I would guarantee Mr. Churchill that he would not only get his money back in due course, but that, incidentally, he would help to cure the unemployment malady, which is giving so much trouble. Think, for instance, of railway developments in Nigeria or the Gold Coast. Orders for locomotives, rolling-stock, steel rails, to

begin with. And every florin you pay to the native on the spot for his labour creates a demand for Manchester goods, food, and other commodities, which, in their turn, need transport and shipping, insurance, trading and banking facilities. Surely this is economically a sounder proposition than spending so many millions in doles, with the certainty of no return for your money but idleness and discontent. We are all glad to hear that this view is being recognized, and some schemes of colonial development are being worked out."

We like the policy adopted by this bank towards its employes. If you want good work well done by your assistants you must show genuine interest in their well-being, and not only say nice things of them once or twice a year. The Colonial Bank does both, as we learnt from the chairman that a further £10,000 has been allocated to the pension fund. "When this fund was established two years ago," the Chairman said, "the bank's liability in respect of accrued contributions was estimated at £100,000. As you will remember, we initiated the fund with £60,000, and although the remaining balance might well have been spread over a period of years, it is particularly gratifying to your directors to have been able to make such good use of the fat years we have been enjoying as to wipe out this entire liability in four consecutive half-years. I feel it must also be a matter of considerable satisfaction to our most loyal and efficient staff to know that this fund is now on an absolutely solid foundation."

Meanwhile two important men are visiting the West Indies. One is Hon. Edward Wood, M.P. (Under-Secretary of State for the Colonies), and the other Mr. Charles Hewett, the manager of the Colonial Bank. Both will be welcomed.

Talking of the West Indies reminds us that we had the pleasure of a visit from Mr. Norman Rodger, editor of the *International Sugar Journal*, this week, when we discussed, among other items, the issue by Mr. Rodger of the second (revised and enlarged) edition of Mr. Noël Deerr's "Cane Sugar," which we mentioned last December when Mr. Deerr figured in these pages as "Our Friend." The new edition costs 42s. net, and can be obtained either from Mr. Rodger at 2, St. Dunstan's Hill, E.C.3, or from our own publishing department, which has recently been very busy satisfying the demand for books on the tropics and tropical planting. The size of some of the orders we receive is surprising. What a pity it is that modern books on coffee and sisal are still wanting, and even on tea-planting and cultivation. The old stagers may not need to be taught, but it must be remembered that new men are always going out and, in these days, there are no creepers in the old sense of the word. As little as possible is left to chance; reliable books with the last word on the crops to be planted and cared for are wanted both by those about to start as well as by those already overseas at work.

In the second edition of the "Cane Sugar," Mr. Deerr seems to have almost, if not entirely, rewritten the first book, whilst keeping, all the same, to the general arrangement followed in the former edition. Those who have followed his career with Arbuckles and elsewhere since the first edition appeared (see

our notes on him in December, 1920, p. 184) will know what a lot of fresh information Mr. Deerr has gotten together. Study his new work and see if he has not placed this at your disposal. Those actually "in sugar" can say so better than we who are only in an office.

Coming to markets, sugar tends lower. 96 per cent. Cuban is down to 15s. and even 14s. 10½d. for future delivery, whilst spot business includes crystallized British West India which was selling at 38s. to 43s., White Natal 43s. and 44s., White Mauritius 46s., White Java 47s. 6d.

Cotton, after its run up—it was over 14d. for fully middling American on October 1st—is now back at 12½d., with lower prices forward, whilst Fair Sakel Egyptian is worth about 24d.

Coffee sales include bold Mysore at 114s. to 120s., peaberry 119s. 6d. to 120s. 6d., fair to fine Nairobi 71s. 6d. to 87s. 6d., greenish to 83s. 6d., colory 90s. to 108s., good to fine 101s. to 125s., peaberry up to 121s. 6d. Good greenish Uganda went at 72s. to 87s. 6d., peaberry up to 70s. Good Kilimanjaro realized 87s. 6d., fine bold 109s., East African 58s., 72s., 79s. 6d.

Manila hemp is at £40, New Zealand at £42 10s. for fair spot, East African sisal has been selling at £37 15s. to £40 5s., whilst West African is worth £35 or a little more. Shellac sells at 325s. to 330s. for T.N. Orange, and 290s. for blocky A.C. Garnet. Palm kernels have dropped from £20 10s. on October 1st to about £18 on October 15th, against £34 10s. in 1920. Copper is worth £68 to £68 10s. Tin about £155 to £156.

Coming to finance, the following is a comparison of the principal points on the returns of the Bank of England on October 15th compared with a year ago:—

October 15th.	1921	1920
Bank Bullion	... £128,421,587	£123,154,414
Reserve of Notes	... 20,431,910	12,898,065
Private Securities	... 80,371,836	81,675,848
Notes in Circulation	... 124,613,620	127,123,340
Rate of Discount	... 5½ per cent.	7 per cent.
Price of 2½% Consols	... 49	45¾
Price of Bar Silver	... 42½d.	53½d.

The London Cocoa Market.

BY THE EDITOR.

I WAS glad to see the portrait sketch of the Head of Messrs. Cadbury Bros. London staff in the *Confectionery Journal* of September 29th. Mr. William Davenport, who occupies that by no means unimportant position, has become almost as well known a feature of our new habitat (Messrs. Cadbury's London office being quite close to us) as the Monument itself. What else can you expect of a man who has been up and down the street since 1896? I trust that we shall long have the pleasure of meeting him now and again. As his father is reported to be still alive, we look forward to doing so.

Talking of the *C.J.* reminds me of the interesting Trade Exhibition number that they issued on September 15th. I spent much more time looking through it than I could well afford, and so did others,

who regretted that they did not know all the chocolate manufacturers who advertised therein, as then (they seemed to imagine that) they would get chocolates—as much and more than they could eat—from them for nothing. What an idea. You never do know how the public is going to take to anything or what criticisms they may offer. As I noticed among the many advertisements that there were nearly fifty chocolate manufacturers alone, I wondered what would have happened had each advertiser sent only 1 lb. of chocolates to the demoiselle who seemed to imagine that they only existed to give them away for nothing. The exhibition number covered 150 pages, carried 77 illustrations, weighed 12 oz., and cost only twopence. Looking through the advertisements, I noticed that out of those forty-odd chocolate manufacturers who advertised, twenty-nine were English firms, three had foreign names, but seemed to have factories over here, whilst there were eleven others who had factories abroad with agents on this side. Surely with such an army the raw cocoa market should have more life in it. Perhaps it will have soon; in any case, Accras are in good demand around 50s., and that is better than being dull at under 40s.

Talking of Accras reminds me that whilst so many are “mooching about,” killing time until the trade boom comes, I find so much to do trying to hustle it up a bit (being a firm believer in the policy that if all did the same the boom would need no hustling, except to satisfy its wants) that I did not give a correct impression of the Accra cocoa shipments last month. The day after we went to press I received a copy of the Customs report of the Gold Coast for 1920 (for which many thanks); had I received it a little earlier I could have made a better tale than I did, as I could then have shown exactly how the 120,000 tons were placed, and what share went through Secondee and what through Accra.

Perhaps I may be excused if I reproduce what a correspondent in the London *Confectionery Journal* had to say on the matter. He said a good deal, I consider; here is some of it:—

“I have received the Customs report of the Gold Coast for 1920, with the shipments of the various products according to ports. Before, therefore, the subject, so far as we are concerned, is pigeon-holed and forgotten (on this side, Ed., T.L.), it may be as well (possibly more fair towards those in favour of the new scheme) to show exactly how the shipments from Secondee (quite close to the proposed Takoradi harbour) have grown and now compare with Accra itself.

COCOA EXPORTS FROM THE GOLD COAST.

Via	1911 Tons	1917 Tons	1918 Tons	1919 Tons	1920 Tons
Accra ...	22,469	49,543	40,088	94,785	53,535
Secondee ...	4,824	21,652	15,749	39,502	41,318
Winnebah ...	4,039	9,001	5,163	16,057	15,318
Addah ...	5,625	1,463	475	4,241	2,580
Saltpond ...	2,388	4,296	2,410	12,513	6,331
Cape Coast ...	344	3,276	2,074	6,539	4,382
Other Ports	37	1,733	384	2,539	1,309
Total	39,726	90,964	66,343	176,176	124,773

“The year 1919 was, of course, abnormal, and the accumulations from 1918 at Accra had to be worked

off, whilst last year, when more normal conditions prevailed, the quantities exported went down with a run. Not so with Secondee. Although in 1919 the shipments were two and a half times as large as in 1918, they are not so much larger than 1917 as the Accra figures are when compared with 1917; yet, whilst in 1920 the Accra exports dropped almost 50 per cent., the Secondee exports showed a further increase. Then turn also to the shipments from Winnebah. Last year these, it is true, fell slightly behind 1919, but, at the same time, both these years—1920 and 1919—show a big jump over all previous (Winnebah) figures, until now Winnebah plus Secondee equals 56,636 tons exported against only 53,535 tons shipped from Accra. Hitherto Accra has been far ahead of anywhere; it has equalled and even left behind the totals shipped from all other centres put together. Now all this is changed, and two ports only (Secondee and Winnebah) leave Accra well behind. What does this mean? Will these two ports continue to grow, and, if they do, what has brought about such a change?”

“Will the present Accra exports,” the *C.J.* goes on to ask, “be shifted to Secondee or, let us say, to Takoradi for shipment? All these queries make one think more than ever of the proposal to throw all the dice on the Secondee centre and still leave Accra with its surf-boats and decreasing exports. Do the authorities over there feel that it will pay best to push on the hinterland behind Secondee, and, if this is done, will that area prove a ‘stayer,’ or will it come up as Accra has done and then go slack and shrink in time as well?”

“I say all this not to cast discredit on the agricultural department over there, but entirely the other way. If the Gold Coast does go back, it will be merely that the incorrigible indifference of the natives has proved too much even for the Gold Coast Department of Agriculture, which, as I have said before, will take some beating. If anyone can win over the native indifference it will be them.”

In their issue of October 13th they again mentioned the matter, but only in a brief paragraph as follows, viz.: “Talking of the Gold Coast, may I very briefly again refer to the Takoradi scheme, and especially to Mr. J. E. Cort’s letter on it, as published in *West Africa* of October 8th, following on that of Mr. Lewis Smart’s of a fortnight or three weeks earlier?”

“In my last notes on the subject, I see that I referred to Accra as having no railway and to Winnebah as being blessed with one. It should, of course, have been the other way round. The rest of my remarks, however, hold good, and it is still to be hoped that, before it is too late, very careful attention will be given by the Colonial Office and those at the head of affairs on the Coast itself to the pertinent remarks made in *West Africa*, not only against the scheme being adopted at once, but against the tendency of insisting upon its being carried through without that serious consideration to which the expenditure of so large a sum of the public’s money is entitled, as well as to the harm that can accrue to Secondee without an equivalent benefit in comparison to the Gold Coast as a whole. Let this question be honestly asked and answered, not by a dozen officials, but by the com-

mercial community as a whole. "Who wants the Takoradi Harbour, and when and how can it be expected to pay?"

Coming to general topics, it is of interest to note that in London our stock dropped nearly 30,000 bags in a fortnight, i.e., from 166,000 on September 24th to 136,000 on October 8th, surely therefore we can take in more than we have been receiving without any fear of being overdone. Now it has gone to 130,000 bags as under.

Here are the comparative figures:—

LONDON STOCK, Oct. 15th:—	1921 Bags	1920 Bags	1919 Bags	1913 Pre-war
Trinidads ...	21,932	44,708	34,288	12,557
Grenadas ...	18,259	31,165	16,689	4,071
Other W.I. ...	10,169	21,853	7,952	4,450
British African ...	15,181	25,947	26,391	7,489
Portuguese African ...	936	840	13,029	5,063
Cameroons ...	1,351	1,378	3,093	3,256
Ceylon and Java ...	11,905	21,645	7,132	15,317
Guayaquil ...	33,111	78,933	9,709	19,308
Bahia and Brazil ...	147	1,452	2,486	3,696
Other foreign ...	17,260	45,143	12,754	9,463
Totals ...	130,251	273,064	133,523	84,670

Havre has decreased her accumulations steadily month by month. If you refer back, you will find that at the end of June there were 270,969 bags, against 257,608 on July 31st, 243,432 on August 31st, and now 224,878 at the end of September, showing a decrease of 46,000 bags in the four months. London, of course, has dropped more rapidly. At the end of June she had 191,337 bags, so that planters and shippers abroad can note that the deliveries at these two ports alone have exceeded the landings by over 100,000 bags in three months. If this rate continues neither port will have fat stocks by Christmas, so that considerable replenishments will surely be needed in the New Year. Perhaps it was the realization in June, and even before, that something of the sort would happen, which caused buyers to take more interest in the market and to buy freely since. Here are the Havre figures:—

HAVRE, Sept. 30th.	Stock Bags 1921	New York \$3.72½ Paris Fcs. 52.20	Stock Bags 1920	New York \$3.05 Paris Fcs. 52.25
		Value Fcs.		Value Fcs.
Pará ...	6,943	125 to 135	7,501	200 to 218
Bahia ...	21,571	125 ,, 150	41,702	182 ,, 215
Venezuela ...	27,276	147 ,, 175	32,345	225 ,, 308
Trinidads ...	24,367	150 ,, 155	59,789	212 ,, 215
Grenada & O.W.I. ...	10	122 ,, 142	10	198 ,, 212
San Thomé ...	22,839	104 ,, 147	58,134	170 ,, 215
San Domingo ...	32,236	112 ,, 122	42,275	177 ,, 188
Haiti ...	27,342	88 ,, 108	38,228	162 ,, 188
Accras ...	34,472	120 ,, 123	49,468	167 ,, 170
Guayaquils ...	10,496	147 ,, 167	14,566	255 ,, 272
Others ...	17,326	—	31,203	—
Totals ..	224,878 bags		375,221 bags	

During September 24,467 bags were landed at Havre and 43,012 delivered. Besides the above stock, 22,119 bags were waiting to pass in.

I understand that the rains on the Gold Coast have been hindering the transport of cocoa, a big portion of those 200,000 tons which that colony is now said to produce. In any case only 84,200 tons were exported from January-August, against 93,973 last year.

Persistent as the reports have been, and still are, I do not expect that colony to make up the 124,000 tons exported last year. Of course, it would be nothing wonderful if she did, but I do not expect her to do so. Anything wonderful in the coming crop will be, I fancy, postponed until "after Christmas," and not appear before. This does not say that the cocoa is not in existence, but simply that with transport difficulties and possible differences in opinion up-country as to the value of the cocoa, less will come down to the Coast (if I prove right) than some look forward to receiving.

Germany has been buying greedily. Whatever the rest of the world may be doing that country is going ahead in every way. Unless radical changes take place in this country and America, we shall be forced, in spite of the war, to look at Germany with covetous eyes, not for her wealth, but for her willing workers. Men who work can be forgiven much, especially if working against long odds. Men who slack are contemptible, but those who keep others from working are beneath contempt—they are a menace to the welfare of the world. The tropics and their produce are suffering, and will continue to suffer, seriously because of such men. This is why one cannot help regretting that consumption on this side cannot be stimulated to the degree that it could assume were it given the chance. We are told that Germany's net imports in eight months only (and latterly their exchange went to over Mks. 700 to the £) were 66,000 tons, or 8,000 tons a month. On the top of this another 100,000 bags went into Hamburg (over 6,000 tons) during the first three weeks of September. What a market we should be having were France and elsewhere to do as well. Of course it can be urged: "Look at the population of Germany," but to this one can truly say: "Look at the exchange against Germany." When I estimated that Germany would take 70,000 tons this year I thought I had been liberal; at the rate she is going ahead at present she will need considerably more than that unless the higher duty checks her demand.

Our own deliveries for consumption, marvellous to report, shows an increase for the month. Let us hope it will continue to do so. The imports, however, continue to shrink. During September they were less than half of last year, and for the nine months they are just half. Why is this so? Is it that the cocoa has gone to Germany direct instead of coming to us? Just now, one hears, everybody is selling to Germany, even America. Is it that such cocoa—raw material—that they are selling in this way shows a bigger profit than if turned into chocolate and powder. Is it that the retail trade is still selling too slowly because it cannot, as a body, meet the public demand and adapt its over-high prices to suit the pockets of the multitude?

Here are the figures of January-September:—

	Imported Tons	Del'd. H.C. Tons	Exported Tons	Stock Sept 30th. Tons
1913 ...	2,936	2,431	423	10,650
1919 ...	4,798	5,575	3,828	68,950
1920 ...	5,230	3,292	6,165	67,300
1921 ...	2,504	4,551	4,704	43,800
Decr. 2,726		Incr. 1,259	Decr. 1,461	Decr. 23,500

Nine months	Imported Tons		Del'd H.C. Tons		Exported Tons
1913 ...	27,603	...	20,503	...	5,178
1919 ...	102,112	...	45,088	...	11,980
1920 ...	97,035	...	38,918	...	30,168
1921 ...	48,592	...	33,546	...	18,196
	Decr. 48,443		Decr. 5,372		Decr. 11,972

The Guayaquil receipts to the end of August amounted to 493,757 quintals (382,521 being Arriba), against 548,913 last year, of which 461,444 were Arriba, whilst the Bahia movements were as under:—

BAHIA MOVEMENTS—

	Receipts		EXPORTS		
	1920 Bags	1921 Bags	1919 Bags	1920 Bags	1921 Bags
May ...	9,535	13,355	107,540	15,291	41,200
June... ..	50,371	7,814	23,198	33,724	14,652
July ...	75,979	23,082	41,533	53,656	37,066
August ...	101,415	48,767	47,707	101,257	42,726
Totals ...	237,300	93,018	219,978	203,928	135,644

Coming to prices, there is said to have been some pressure to sell new crop Accras on account of the heavy supplies expected from there. For the Gold Coast to produce cocoa is one thing, for them to get the beans down to the coast is another. As one of shareholders at the meeting of the Colonial Bank in London the other day pointed out, what that colony

wants immediately is not attention at the Coast end, but up in the interior. Spend some millions on railways, especially behind Accra, and then if the new areas get planted with other produce, the crops can be moved and Takoradi will be needed. At present lack of transport facilities up-country will only make the proposed harbour a costly if magnificent anachronism. If the Gold Coast really produces 200,000 tons of cocoa, urged the speaker, that proves all the more decisively that it is better transport facilities which are immediately required, leaving the new harbour scheme for later on. We know the Coast can ship 176,000 tons of cocoa in a year because it has done so, but how long did it take to transfer that quantity towards the coast? Considerably more than twelve months we feel sure. The news, therefore, of the very large crop that the Gold Coast is expected to produce this season will fall on deaf ears. It is no concern of buyers what the Gold Coast can produce. All they want to see is what it can transport and export. It truly is a case of Wait and See when discussing such a crop and its value.

Meanwhile Trinidads continue to sell up to 61s., with good red at 58s. or 59s., and mid. red at 56s. to 57s. Fine Grenadas, St. Lucia, or Dominica all sell on the basis of 55s. to 56s. for fine, down to 45s. to 48s. for common. There are (or were) some very nice piles of Jamaica about, which seem to hang fire; why this is so seems difficult to say, since it can be purchased on a lower level of cost than Grenadas, whilst the quality leaves nothing to be desired.

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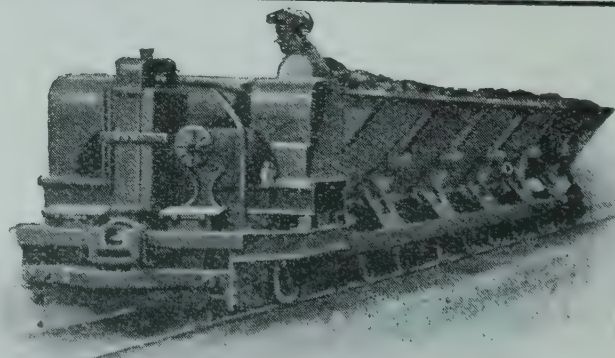


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Tropical Life:

A Monthly Journal devoted to the Interests of those living, trading, holding property, or otherwise interested in Tropical and Sub-Tropical Countries.

VOL. XVII.—No. 11.]

NOVEMBER, 1921.

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The British Empire Exhibition.

WHY NOT USE IT TO BOOM SUGAR PRODUCTION IN INDIA?

WHILST busily engaged in helping to assure the success of the above exhibition we heard that Mr. D. T. Chadwick, the Indian Trade Commissioner in London, and a member of the Executive Committee of the Exhibition, had copies of the Report of the Indian Sugar Committee, so applied for five copies,¹ and, having sent four on to various friends, we sat down to study our own, as we had an idea that a considerable amount of mutual benefit to India and to the Exhibition might accrue by our doing so.

As to the desirability of organizing and thereby offering the greatest help to developing the sugar industry of India, we are told on the opening page of the report that there can be no doubt that everything possible should be done to bring this about. The first thing, therefore, is for all to help organize the industry. In this the Exhibition surely can help. Men, money and experience are necessary; let us attract all three by a representative collection of samples of Indian-grown canes and sugar as well as of other exhibits that could help improve the conditions already existing. The perfect sugar estate as a rule must be always on the move, as regards the canes and appliances used, until we are certain perfection is reached, and even then it is wise to watch for something better in every department.

Going back, therefore, to our proposal for an All-Cacao Pavilion in our last issue, surely the sugar industry in India is important enough to have a pavilion to itself. Here we should see the native sugars, whether *gûr*, *rab* or jaggery, as well as the produce of the *Borassus flabelliformis*, the Palmyra palm, and of the Indian date palm (*Phoenix sylvestris*). Having got these, then attract modern appliances, whose cost is within reach of the pockets of the local sugar makers, whether Indian or European, and which will lessen the cost of production of these crude sugars whilst improving their quality and increasing the output. When this is done, surely greater confidence will be generated into the minds of the would-be buyers over there as to what our engineers can do and widespread orders result. At present nothing is settled, neither costs, capacity, nor as to which make of mill will be best, or anything else. Our suggested pavilion would help solve these difficulties.

* Published by the Government Central Press, Simla, India, and costing Rs. 6, or possibly 9s. over here, with another shilling for transport by inland parcels post as it weighs just 3½ lb. without wrappers.

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Then ask makers of ploughs and agricultural implements to come forward and show what they have to offer to till the ground and keep down weeds, as well as to cut drains or bank up the lands for irrigation. Excellent photographs are attached to the report showing the work done in Java along such lines, and the day India does but half as well as Java, what rejoicings there will be, for at present India averages 1.07 tons of sugar (and that mostly *gûr*) against 4.12 tons in Java, including white sugar. Here, therefore, is much room for improvement, but the plough, the cultivator and the tractor must be utilized before progress can be made. Give a good place to these, therefore, in the Indian Sugar Pavilion, placing them next to the machinery.

Lastly (for this issue), we come to manures, one of the most important items in the programme. This range of exhibits should be quite easy to gather together, but not so easily as the exhibit will be important if thoroughly inclusive of all that is required under the one heading.

There is nitrate of soda wanted here, ammonia there, oil-cake everywhere, to say nothing of potash. The provision of a cheap source and supply of nitrogenous fertilizers, we are told on p. 180, is the most insistent problem of Indian agriculture, for if India's cane areas were to be intensively cultivated as we want them to be, the cane on those areas sufficient to produce a million tons of factory sugar would require 92,960 tons of sulphate of ammonia or 375,200 tons of oil-cake meal. As we want India to work with a view of producing 3,000,000 tons of factory sugar, those who are expert in the fertilizer trade can work out what will be needed of the above, as well as of nitrate of soda when preferable.

Then comes the question of transport, light railways, &c., but this is touched upon elsewhere. We have, however, said more than enough to show what a large and important pavilion the Indian sugar industry would need at the coming Exhibition were all sides of it to be made thoroughly representative.

Mr. Noël Deerr, were he here, would, we feel sure, tell us after his look round (he is, of course, the chief expert adviser to the Sugar Corporation of India, as stated in "Our Friend" last December), and when he had studied the Report now under discussion, that, whilst things in India move very, very slowly, especially just now, her possibilities as a large sugar-producing country are, and always will be, very great. If we claim that India can produce sugar, like the Gold Coast with cacao, cheaper than any other part of the world, this need not necessarily mean that for a few years Indian sugar will undersell all its competitors, because no such thing can be looked for.

Probably Cuba and elsewhere, places like San Domingo and possibly Brazil, if their industry is at all well organized and not run too extravagantly, can and may place sugar on the market cheaper than India can, but in Cuba they are—we feel—to a very large extent, living on capital, that is to say, they take all and give back little. Thus they are depreciating land values whilst allowing nothing for depreciation in their costs of production, and in spite of not doing so, find values of late—at present 96% sugar is put at 2½ cts. over there—do not pay. What price therefore—let

India ask—does sugar production really cost this, my chief competitor, when the above charges are adequately allowed for, and what will happen over there, i.e., in Cuba, when they have taken into cultivation all the available forest land—to what height will their cost of production then rise?

In India; on the other hand, so far as we can gather, the system of cultivation which has grown up with their thirty centuries of experience (against the forty centuries that the late Professor King claimed for China) has not resulted in any depletion of their soil fertility and so, although this may be a more expensive policy to carry out, there is no question of land depreciation in India to be considered; it rather follows that, on account of the continual cultivation, the value of the land in India tends to appreciate.

Surely if these facts were better known, that is, if our line of argument is correct, and they are facts, then money even in these days would come forth willingly to help organize and develop the sugar industry of India. If so, although no one need wait until 1923, a well-thought-out inclusive exhibit of Indian sugars, with copies of this Report available for inspection, and with exhibits of the machinery and implements needed in the factories and on the land, of the manures, laboratory appliances, &c., close at hand to examine and discuss, would do far more for sugar in India within a few months than can be looked for within many years without some such object-lesson, especially if this can be left as a semi-permanent one. This is why we are most anxious to see such a pavilion at Wembley in the spring of 1923.

Vegetable Oil Notes.

MR. E. J. F. CAMPBELL RETURNS FROM BRITISH HONDURAS.

The Cohune epidemic which has broken out again reminds us that we have received a letter from Mr. Campbell, now in the Bahamas, from which we learn that he retired owing to a breakdown in health and left British Honduras for the more genial climate of Nassau. We are sorry to think of him being away from Belize, but prefer to think of him growing well and strong again in the Bahamas in place of being overworked in Honduras. When sending him the last issue of TROPICAL LIFE, we wrote congratulating him on the appreciative letter that we saw in the papers had been sent him by Kew, which was worded as follows:—

“Royal Botanic Gardens,

“Kew, Surrey,

“July 14th, 1921.

“DEAR SIR,—The Director requests me to acknowledge your letter of June 18th. We regret to hear that your time of service in British Honduras has come to an end, and send you our best wishes for your health and happiness in your retirement.

“You have had a long and honourable career in the Colony under difficult conditions and have always been a valued correspondent of Kew. You will be interested to hear that in working out the Belotias of Central America we find that your Nos. 75 and 81—

'Mocho,' 'Balsa,'—prove to be a new species, which has been named *B. Campbelli* (Sprague) in your honour. The account of the Belotias, including six new species, will appear in *Kew Bulletin* No. 7.

"I am,

"Yours very truly,

"ARTHUR W. HILL,

"Assistant Director."

VEGETABLE OILS AND THEIR VALUE AS FOODS.

Results of experiments on the average digestibility of oils as diet are shown in the appended table. The digestibility of the protein and carbohydrate of the entire ration of the following oils tend to indicate that the fats exercised no unusual effect on the utilization of these constituents as food for "humans," and as these fats and oils, with the possible exception of cupuassú fat, produced no abnormal physiological effect, they may be regarded as satisfactory for food purposes. Cohune, hempseed, palm kernel and poppy seed oils are very nourishing to the human body, so we are assured.

Kind of fat	Digestibility of entire ration				Estimated digestibility of fats
	Protein	Fat	Carbo-hydrates	Ash	
Avocado (<i>Persea gratissima</i>)	Per cent. 85.8	Per cent. 90.0	Per cent. 97.0	Per cent. 74.9	Per cent. 87.9
Cohune oil (<i>Attalea Cohune</i>)	63.5	94.6	95.8	73.3	99.1
Cupuassú (<i>Theobroma grandiflora</i>)	75.2	88.8	96.6	55.8	94.1
Hempseed oil (<i>Cannabis sativa</i>)	67.1	94.4	97.0	68.2	98.5
Palm-kernel oil (<i>Elaeis guineensis</i>)	61.0	95.3	96.9	56.5	98.0
Poppy-seed oil (<i>Papaver album</i> and <i>P. nigrum</i>)	49.1	91.3	96.5	50.2	96.3

FREAK AND FANCY COCONUT VARIETIES.

In a recent issue of the *Journal of the Mysore Agricultural and Experimental Union of Bangalore* we came across the following note about some of the freak or fancy varieties of coconuts in the East Indian Islands:—

"It is stated that among the varieties that are found to a limited extent is what is known as the 'Kapuno,' the meat of which fills the cavity of the shell. Then there is the 'tamisan,' the husk of which is sweet and edible. The 'nino' is a dwarf coconut tree which, it is stated, is well adapted for ornamental use in gardens and along roads. The 'bankalen' has a very thick husk, and would probably yield a large percentage of good coir. The 'manipod' is a very precious variety, but with somewhat undersized nuts. Some varieties like the 'nini' come into bearing when from 3 to 4 years old, but the varieties usually planted, and most esteemed for the production of copra, do not ordinarily arrive at bearing age until 5 or 6 years old.

"We do not know if there are many named varieties of coconuts in Mysore. There is no doubt that though they do not bear distinctive names nor are planted separately, each variety distinct by itself, still they are

sufficiently large. Their characteristics of economic value are also sufficiently important to warrant study. At the first coconut show which was held under the auspices of the Department on an elaborate scale at Tiptur by the Taluk Committee of that Taluk some years ago, this matter was strikingly demonstrated.

"Varieties showed differences in size, shape and colour; in number of nuts per bunch; in the thickness of the husk as compared with the nut; in the size of the nut; in the thickness of the meat or kernel; in the thickness of the shell; in the taste of the kernel. These were striking to the ordinary observer, while doubtless differences in the composition and other characteristics were there which could be detected by closer study. Of freak or fancy varieties there were not a few, not any less interesting than the list quoted above. For instance, there were those called 'butter' coconuts, in which the kernel when ripe is soft and can be squeezed between the finger and thumb. There were those called 'Gangapani' nuts which gave very sweet milk and which though unripe could be kept for many days without going bad; there were some nuts which gave three shoots or 'seedlings' from each nut, all the three ovaries being fertile; there were blind nuts, i.e., those which, although fully developed were all husk or fibre and had no 'nuts' in them at all; there were also said to be trees in which the leaves in the frond were not separate but joined together. This much is as far as could be judged from the collection exhibited; probably there may be more. The subject is well worth being taken up for study," concludes our contemporary. We agree that it is so.

GROUND-NUTS IN INDIA.

According to the Mysore Agricultural Calendar for 1921 (price about 3 annas post free, c/o The Agricultural Department, Bangalore, Mysore) many varieties of ground-nut are under cultivation in India to-day. The success of this or any crop in any locality depends upon the suitability of the crop for that locality. Should the crop not suit the local conditions, the results of the harvest will be disappointing. With a view to find out the best variety for our conditions, tests have been conducted on the Hebbal Farm for the last three years to ascertain yield and the oil contents of the different varieties. This work was carried out in the laboratory. The soil was a poor sandy one, and the seeds were sown in rows one foot apart. The following figures are the results of the tests.

	Yield of pods per acre Average of 3 yrs.	Per cent. of kernel to pod	Per cent. of fat	Oil in lb. per acre
Sogatoor (local)	1,256 lb.	77	47.97	478
Carolina	1,121 "	77	46.87	404
Barbados	1,111 "	72	44.65	350
Pondicherry	4,008 "	78	43.00	337
Big Japan	969 "	78	47.10	358
Mauritius	962 "	78	46.42	347
Transvaal	960 "	77	45.53	334
Brazil	849 "	79	47.21	314
Small Japan (erect type)	517 "	79	50.23	206
Spanish do.	511 "	76	48.51	189

The erect types are very rich in oil and bear all the pods in bunches at one place, but they are low yielders. It may pay the factory to buy them; whether it will pay to cultivate them exclusively re-

mains to be seen. The others are spreading varieties and give high yields, but as they vary in quality, care should be taken to select the proper type for sowing. The Agricultural Department is helping those wishing to select land and to procure good seed with the idea of raising ground-nuts for market.

PRICES.

Note the market fluctuations.

NOVEMBER.		COPRA PER TON—SPOT.									
		London		Ceylon		Marseilles		Rotterdam*		Hamburg*	
		F.M.S.				F.M.		F.M.S.		F.M.S.	
		£	s.	£	s.	£	s.	£	s.	£	s.
Nov.	19	...	25 10	...	27 15	...	25 5	...	25 15	...	25 15
„	16	...	25 7	...	27 5	...	25 10	...	25 15	...	25 15
„	12	...	24 15	...	27 5	...	24 10	...	25 15	...	25 15
„	9	...	25 10	...	27 0	...	25 5	...	25 10	...	25 10
„	5	...	27 7	...	28 15	...	27 0	...	27 10	...	27 7

COCONUT OIL PER TON.

		Spot		Ceylon For shipment		Spot		Cochin For shipment	
		£	s.	£	s.	£	s.	£	s.
Nov.	19	...	47 0	...	42 0	...	60 0	...	49 0
„	16	...	47 0	...	43 0	...	63 0	...	52 0
„	12	...	47 0	...	43 0	...	68 0	...	53 0
„	9	...	48 0	...	44 0	...	68 0	...	53 0
„	5	...	48 0	...	45 0	...	68 0	...	55 0

OTHER OILS PER TON.

		Castor Firsts		Ground-nut Crude†		Palm kernel Crude Hull spot		Cotton seed Crude Egypt		Linseed Spot		Soya Bean Oriental Barls.	
		£	s.	£	s.	£	s.	£	s.	£	s.	£	s.
Nov.	19	...	55 0	...	48 0	...	38 0	...	37 0	...	25 10	...	37 0
„	16	...	55 0	...	48 0	...	38 10	...	42 0	...	27 15	...	37 0
„	12	...	55 0	...	53 0	...	38 0	...	42 0	...	27 15	...	36 0
„	9	...	55 0	...	53 0	...	39 0	...	42 0	...	28 10	...	37 0
„	5	...	57 0	...	53 0	...	40 0	...	42 0	...	28 10	...	37 0

SEEDS PER TON.

		Linseed Calcutta		Linseed La Plata		Cottonseed		Castor Bombay		Ground Nuts† Hull		Soya Beans Manch. Spot	
		£	s.	£	s.	£	s.	£	s.	£	s.	£	s.
Nov.	19	...	16 0	...	15 15	...	12 0	...	15 5	...	21 0	...	12 10
„	16	...	16 0	...	15 5	...	13 0	...	15 15	...	21 0	...	12 10
„	12	...	16 5	...	15 5	...	13 10	...	16 15	...	21 0	...	13 0
„	9	...	17 0	...	16 0	...	13 0	...	17 5	...	21 0	...	14 0
„	5	...	17 10	...	16 0	...	13 10	...	17 10	...	21 0	...	13 5

CAKE.

		Linseed London Made		Cotton Lond. Egypt		Coconut		Ground Nuts‡	
		£	s.	£	s.	£	s.	£	s.
Nov.	19	...	13 0	...	9 5	...	12 0	...	N/Q
„	16	...	13 0	...	9 5	...	12 0	...	12 10
„	12	...	13 0	...	9 5	...	12 0	...	12 10
„	9	...	13 0	...	9 0	...	13 0	...	12 10
„	5	...	13 0	...	9 0	...	13 0	...	12 10

* Not Ceylon as before. † English crushed, naked. ‡ Coromandel. § Decorticated. N/Q No Quotation.

THOSE like ourselves, who are interested in the use of explosives in agricultural practice, believing it to be good, may be glad to know that the latest list of publications from the U.S. Department of Agriculture (September) includes a fifteen-page bulletin, carrying five illustrations, on "The Use of Explosives in Blasting Stumps," by Mr. George R. Boyd, the senior drainage engineer attached to the Bureau of Public Roads. This bulletin is known as Department Circular No. 191, costs 5 cents, and can be had of the U.S. Department of Agriculture at Washington, D.C.

Rubber and Cotton Notes.

AMAZONAS TENDS TO RUN DRY OF WORKERS.

QUITE possibly, in a hundred years' time when it is too late to do anything, except by starting at the very beginning again, someone will find a copy of our book, "The Rubber Industry of the Amazon," and discover what a wonderful book it is. Now, unfortunately, it is hidden away in the bush like that railway locomotive which was there for years. Like the engine, however, which defied Nature and, after being oiled and doctored, ran on its own wheels and under its own steam to the destination it started to reach, we feel sure Amazonas will emerge smiling from its present difficulties, if development work along the lines we indicate is undertaken or *other plans* more beneficial to this wealth-possessing area can be evolved. The authorities and merchant princes, however, must not wait too long, for the machinery can get too rusty and parts become missing to such an extent that nothing can start it, and what remains will only cost money to move it out of the way. We trust that the development of the Amazon Valley will not be allowed to reach such a stage. There are millions who want land to cultivate, and this fertile valley needs cultivators. One would imagine, therefore, that those already there would stop and others come, but that unfortunately is not the case, as a serious exodus of such folks we are told is going on because everyone insists that the black gold alone deserves attention. This exodus must be stemmed and the people taught to forget that there is such a thing as a rubber tree in the place. You might as well settle in the midst of a common and expect to live on the blackberries to be found there. Yet were you to do so everyone would say you were mad, although blackberries are worth as much or even more per lb. than Hard Fine Pará, whilst they cost much less to gather. In the same way, therefore, that settlers or farmers, ignore the brambles and break up and till the land, why not leave rubber alone and live on the land up the Amazon? Realize that the rubber is not worth as much as blackberries. Study our book, or someone else's plan that is still better; above all draw settlers to the Valley (as we show can be done), do not drive or allow them to drift away. There are those who want to come, and you need their help to put the old machine in working order. At present the credit of Amazonas is still sound; oil it and tend it before it collapses and costs money to remove, instead of steaming off in the direction of Para and prosperity, taking you with it. It is time a start were made; £125,000 has been voted to alleviate the distress, when willing hands and pushful natures would do far more good than this drain on the exchequers elsewhere which, coupled with the exodus of labour, are items far too serious to be ignored. If they go on, Amazonas will indeed collapse. We do not feel that relief can come from without, the country must save itself, and it can do so if it will make the attempt.

A "BRIDGE" TO BRIDGE OVER BRAZIL'S DIFFICULTIES.

We were glad to see in a recent issue of the *Rubber Age* that Caoutchouc's elastic "Letter to Somebody" was, on this occasion, addressed to Mr. Robert Bridge, with the suggestion that the firm's motto should be, "Difficulties safely Bridged here." Why

does not Brazil appeal to Mr. Bridge to help her out of her difficulties with Amazonas? He knows something of machinery, he has met rubber in all its stages, and is well experienced in the "cooings and eusses" of Labour and the working classes of all types. If anyone could drive in a wedge to split up the log of helplessness that lies across the road of progress into and out of the Amazon district, it is a Lancashire man of the type so well described by Caoutchouc. The Latin American, more than most folks, gets into a groove from which nothing short of an earthquake can move him. Possibly this is why wise Nature invented earthquakes, and why Manchester is immune from them. Why not, therefore, try a Lancashire man to help bring prosperity to the valley between Para and Peru? If you know of a better type of man, produce him before the earthquake comes as the only remedy.

NEWS FROM HENRY C. PEARSON.

We have had the pleasure of receiving a couple of notes from the editor of the *India Rubber World* of New York, written by Mr. Pearson from his Californian retreat. In the first one our fellow-journalist referred to our drastic proposals last April to ship no rubber from any producing centre for twelve months. (In September of course we reproduced, on p. 140, a letter on the same subject published by the *London Observer*.) "I am not sure but that your suggestion is a pretty good one," Mr. Pearson tells us. "Certain it is that if something is not done to bring crude rubber back to where it belongs in price catastrophe will ensue. Personally, for the good of the trade, I should like to see rubber at a dollar per lb. (this means 4s. 2d. sterling) until rubber reclaimers, who have been of good service to the trade at large, could get on their feet again." In a subsequent letter we were told, "Your comments on the Hard Cure" (our leading article in the June issue of T.L.) "are interesting and sound. I note the cheerful tone throughout in your paper and congratulate you on it. Frankly, you British are the pluckiest people on the face of God's Earth. I do not see how you bear up under your enormous taxes, high living expenses and the machinations of Dreamers and Rogues. That you will pull through and win out is, however, a foregone conclusion, and the same part of America is with you."

This was a pleasant letter to receive. We shall of course win through. We should have done so already if the taxes and local rates were only necessarily enormous and if the cost of living was not any more costly than needs be. As it is, the authorities put up the rates and taxes, whilst assuring us that it costs less to live, and then immediately the shops say it costs more, and keep bread, meat, clothing, milk (and everything else) at scandalous prices, and are ready to charge still more when the rate and tax collector shows them the way.

COTTON TO HELP RUBBER IN MALAYA.

In his letter of June 20th, Mr. Will P. Handover tells us that, referring to the remarks made in our April issue on Cotton Growing, he called attention in the Malay press last year to a native variety of cotton cultivated in the F.M.S. by the Malays of which the subsequent yarn is used by them for weaving shrouds for their dead. It is only sparingly grown,

but why this is so does not seem over clear. The excuse given is that the native has a superstitious fear against making a second sowing.

This cotton is of the kidney type, and so has been passed over by some for other kinds, in one case for some of the latest and best varieties from the West Indies. The native cotton seems to be obtainable from the kampongs or villages of Port Dickson. Samples of the lint sent to England were reported on favourably as having a long staple similar to Sea Island. Samples may have been shown at the Klang and Seremban Agricultural Shows last September (1920), but of this we are not too certain.

PRICES AND STOCKS.

A good demand was apparent early in the month, thanks to American support. Germany also must be buying steadily, but apparently through Holland, and so we do not benefit much. Recently, however, it would seem as if America had been taking more from Singapore, possibly because they feel the rubber there is all new stock, whilst in London some of our rubber was not exactly born yesterday; all the more pity, therefore, that a division cannot be made and the rubber sold like cocoa on date of arrival. There is no cheating over cocoa, why should there be with rubber? As it is, the heavy stock in London is being put to base uses, viz., to trot round the world as a bogey, which grows larger the farther it travels; and used to depress the least show of a rise anywhere, even in Singapore. Can nothing be done to counteract this? Surely with a guarantee from well-known producing firms London can offer as good bargains in new rubber as Singapore with speedier delivery. Is this not the case? Why, therefore, pay the equivalent of 11 $\frac{3}{4}$ d. in Singapore when you can buy the same rubber and have less trouble to get it home from London at 10 $\frac{1}{2}$ d., or five farthings per lb. less? Is America making such huge profits that 1 $\frac{1}{4}$ d. per lb. or £12 a ton is not worth troubling about when buying her raw material?

Writing on November 17th, Messrs. Lloyd, Matheson and Carritt report that their private cable quoted the Singapore market as 36 cents for both Standard Crêpe and Sheet (London equivalent 11 $\frac{3}{4}$ d. per lb.), as against last week's prices of 34 cents for Standard Crêpe and 35 cents for Standard Sheet (London equivalent 11 $\frac{1}{4}$ d. and 11 $\frac{1}{2}$ d. per lb. respectively), whilst their London prices were as under:—

Spot quotations—	1921 Nov. 17th.		1921 10th.		1921 3rd.		1920 18th.	
	s.	d.	s.	d.	s.	d.	s.	d.
Smoked sheet (F.A.Q.)	...	0 10 $\frac{1}{2}$	...	0 10 $\frac{3}{4}$	...	0 10	...	1 0
Crêpe (standard quality)	...	0 10 $\frac{1}{2}$	...	0 10 $\frac{3}{4}$	...	0 10	...	1 0 $\frac{3}{4}$
Parà	...	1 2 $\frac{1}{2}$	...	1 2 $\frac{1}{4}$	...	1 2	...	1 4 $\frac{1}{2}$

Forward positions—	Smoked Sheet				Crepe			
	s.		d.		s.		d.	
1921 November	0	10 $\frac{5}{8}$	...	0	10 $\frac{5}{8}$	
" December	0	10 $\frac{3}{4}$	...	0	10 $\frac{3}{4}$	
1922 January—March	0	11 $\frac{1}{4}$	...	0	11 $\frac{1}{2}$	
" April—June	1	0	...	1	0	

Stocks—		Tons		Tons	
Plantation,	}	.. Nov. 12th, 1921, 69,970 ... Nov. 13th, 1920, 43,996			
London					
Parà, Liver-	}	... .. 1st, .. 960 1st, .. 600			
pool					
		<hr/> Total 70,930		<hr/> Total 44,596	

Coffee Notes.

COFFEE YIELDS PER TREE IN INDIA.

"THE *Planters' Chronicle*, p. 164," Mr. Anstead tells us, "published results of an experiment made at the Coffee Experiment Station at Sidapur in 1919-20, with the object of throwing light upon the yielding power of individual coffee bushes. A small plot of 110 trees, obviously of low vitality, was chosen, and the crop harvested off each bush separately, the berries being counted and weighed, and a record kept of each individual bush.

"This experiment was repeated this year with the same bushes which had been numbered for future reference. Three pickings were made, the final one being a stripping.

"The yields have been collected into groups, as shown in the following table:—

Group	No. of trees	Per cent. of total trees	No. of berries	Per cent. of total berries	Weight. Green crop lb. oz.
0- 100 fruits	44	50	1,921	8.9	6 11
101- 200 "	13	14.8	1,832	8.5	6 6
201- 300 "	12	13.6	2,882	13.4	10 0
301- 400 "	3	3.4	1,000	4.6	2 14
401- 500 "	3	3.4	1,331	6.2	4 10
501- 600 "	2	2.3	1,124	5.2	3 15
601- 700 "	2	2.3	1,226	5.7	4 4
901-1,000 "	3	3.4	2,851	13.4	9 14
1,001-1,100 "	2	2.3	2,148	10.0	7 7
1,101-1,200 "	1	1.1	1,157	5.4	4 0
1,201-1,300 "	1	1.1	1,260	5.9	4 6
1,301-1,400 "	2	2.3	2,763	12.8	9 10
	88	—	21,495	—	74 1

"Twenty-two trees have been removed from the plot since last year. These either died of borer, or have been killed by other causes. The fall of a large branch from a dead shade tree also smashed some trees so that they had to be removed." (This is what we refer to in the last paragraph.)

"The total crop from eighty-eight trees examined was 21,495 berries weighing 74 lb., an average of 244 berries per tree. Three trees had no crop at all, and many gave only a few berries. The highest yield was one of 1,393 berries, so that there was, as last year, an enormous variation.

YIELDS PER TREE COMPARED.

"If now we draw a line below the group in the table containing 201 to 300 berries, that is about the average, we can divide the trees into two main groups, those bearing below the average and those bearing above it.

"When we do this, we find that sixty-nine trees fall into the first group, and nineteen in the second. That is to say, sixty-nine trees out of eighty-eight, or 78 per cent. bear only 30.8 per cent. of the total crop, while the bulk of the crop, 69.2 per cent., is borne on nineteen trees, or 22 per cent. of the total.

"These figures show a remarkable similarity to those obtained last year, as will be seen from the following table:—

	1919-20	1920-21
Number of trees experimented with	110	88
Number of trees with no crop	2	3
Average number of berries per tree	270	244
Highest yield of berries on one tree	1,752	1,395
Number of berries in the total crop	29,756	21,495
Green weight of total crop	147 lb. 6 oz.	74 lb.

	1919-20	1920-21
Number of berries in one pound...	253	288
Number of trees bearing below the average	77	69
Percentage of total number of trees	70	78.4
Number of trees bearing above the average	33	19
Percentage of total number of trees	30	21.6
Percentage of total crop on trees below average	31	30.8
Percentage of total crop on trees above average	69	69.2

"Of the seventy-seven trees which last year yielded less than the average of 300 berries, eighteen have been removed, having died or been badly broken. Of the fifty-nine left, it is significant that forty-three, or 75 per cent., again gave less than the average of 300 berries this year.

"This tends to show that a coffee bush which has fallen below a certain standard of vigour and become a bad bearer will remain a bad bearer, if nothing is done to it. It is not simply a matter of season that such bushes do not bear; they never will bear till rejuvenated, and the question arises, as stated last year, can we not better distribute the soil, the moisture, and the plant food, so as to take it from these poor trees and give it to the good ones? It is evident that some 70 per cent. of the trees on this particular plot should be replaced by better bearers. Were they all removed, the crop would only be reduced by 31 per cent.

"This experiment will be repeated with the same trees once more this year, and then they, and the neighbouring plot which they represent, will be used for a rejuvenation experiment, to demonstrate the benefits of collar pruning on old worn-out coffee."

THE BEST HEIGHT FOR COFFEE.

As an arm-chair critic who, however, carefully studied coffee picking in the tropics in the days that have been, we do not consider that planters, as a rule, and even such books and pamphlets as the one by Mr. Trench, discuss adequately the *pros* and *cons* of low v. high coffee trees. By low trees, we mean, low enough for every cherry to be picked from the ground by a tall man, or at most with a three-step (library type of) stool that the gatherer can easily carry from side to side of the tree or from one tree to the other. This system of bending over the trees shows that the low type of bush can be cultivated, and although such trees may cover more ground and so will go fewer to the acre, yet we feel sure that the idea (of lower bushes) is worth serious consideration, as the cost of cropping must be lower, and the loss from cherries falling on the ground and being lost, or the cost of picking them up from under and around the bushes greatly minimized. No method offers actual perfection, it behoves us therefore to see which has the most advantages. We believe the lower height bushes are preferable, at any rate with any *arabica* variety. Whether this can be obtained with advantage with Liberian or Maragipe we cannot say.

SHADE TREES FOR COFFEE.

About the year One (as regards the existence of TROPICAL LIFE), Mr. O. F. Cook of the American Department of Agriculture discussed shade or no shade for coffee. Without troubling to hunt up our copy, we would still maintain that no study on this most debatable matter can be complete that does not

consider what Mr. Cook has to tell us. Of course, the lie of the land, the locality, the rainfall, and even the erosion of the soil, have to be taken into account before anyone can say definitely that it is or it is not best to plant or leave shade trees in among the coffee.

The *Philippine Farmer* discussed the matter the other day, and told us of the trees at various centres used for shade. As one does not know the local names in some cases, the list is not as useful as it might be. When used, we are told, Ipil-ipil should be set out at 5 to 6½ metres apart (metre = 39·37 in.), Dapdap 10 to 18, Ratamara 12 to 18, Silhoak 9 to 15, Mata-diya 10 to 12, Bukare 10 to 15, and Guango (is this the Rain tree?) 15 to 20 metres apart, according to circumstances, such as elevation, the position of the sun to each block of trees, &c. In all cases remember that the shade trees themselves can fall or drop large branches, as Mr. Anstead, of Southern India, reported in the *Planters' Chronicle*, vol. xvi, No. 21, as mentioned in the first paragraph.

Light Railways and Tramways for India.

ON p. 244, pars 320-330, of the Report of the Indian Sugar Committee one reads that:—

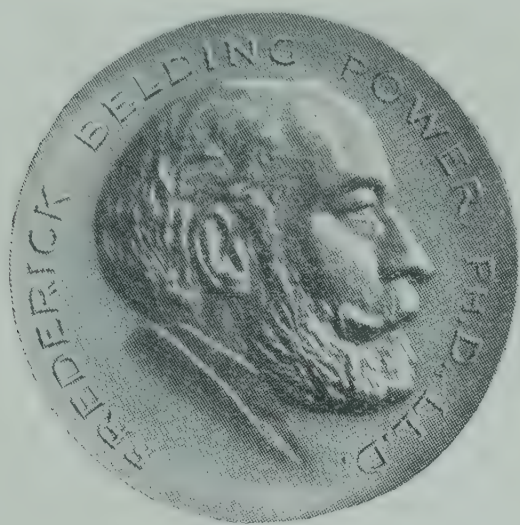
“We need hardly point out that with a commodity like sugar-cane, the deterioration of which sets in early and proceeds rapidly, promptitude in delivery is a fundamental necessity. Pick-up stations should, therefore, be provided at as many convenient points as possible, and every effort should be made to comply punctually with requisitions for trucks. It is equally important that the trucks provided should be properly adapted for the carrying of cane. We understand that, no doubt owing to the exigencies of the war, covered steel wagons have frequently been used to carry cane in recent years. Not only are such wagons inconvenient for the loading and unloading of cane, but the high temperatures, which are generated in them, particularly as the cane harvesting season advances, directly hasten the fermentation of the juice. Open trucks with low sides are best suited for employment on this traffic.

An alternative to the public railways as a means of transport which is largely resorted to in Java, Cuba and other sugar-producing countries, is the system of light railways or tramways privately owned by the central factory. It is natural that this system should find its greatest scope where sugar is grown on large estates which alike secure the concentration essential to economic working and reduce or eliminate the necessity for acquiring rights of property or of way over the lands of others. In the undeveloped tracts of India, where large grants for sugar cultivation and manufacture are still available, it is obvious that a network of light-track railways will equally be required; but even outside these special areas we think that there already exists, and will as the industry develops, exist to an increasing degree, an opening for the use of light railways and tramways to convey cane from the field to the factory. Much will depend on the success which attends the various measures proposed with a view to the concentration of the areas of supply, but the provision of means of transport which will relieve the cane grower of the trouble of carting his crop to the factory will itself

tend to promote concentration. Whether it will be practicable to combine with the quasi-permanent main tracks, temporary and easily movable, feeder-lines right up to the cane-fields along which the trucks would, as in Java, be man-handled or drawn by bullocks to the main system, is a question which only detailed experience of each locality can decide. Outside private estates, however, there is no doubt that the main tracks for such systems will usually have to be laid along the berms (the space between a battlement and the moat, here probably the space on the side of the road.—ED., T.L.) of the public roads, and we trust that the provincial and district authorities will so far recognize their obligations to co-operate in promoting the local production of sugar as to accord a sympathetic hearing to such proposals. We would include also the railway authorities in this appeal. An instance was brought to our notice in Southern India in which the efforts of a sugar factory to develop a light railway system were impeded by the refusal of a public railway to allow a level crossing to be laid across its own line; and while we realize that the safety of the travelling public must remain the paramount consideration, we cannot but feel that efficient safeguards might have been devised which would have enabled the factory's scheme to be carried through without essential security being jeopardized, more particularly as railways are already familiar with the measures necessary for the control of road traffic in similar circumstances.

OTHER engagements prevented our attending the Brewers' Exhibition, but we understand that, as with the Rubber and Tropical Exhibition in June, the Four Oaks Spraying Machinery Co. again had on view a complete range of their numerous manufactures. A machine of special interest was the “Internal” type of Knapsack sprayer which works by means of a rubber diaphragm, whilst there were also the “External” type, all the working parts of which are on the outside, and the pneumatic Knapsack sprayer, during the use of which no pumping is necessary, the operator having full use of both hands for the manipulation of the spraying line.

In *Archives of Internal Medicine* (Vol. 28, No. 3, of September 15th, pp. 252-267) Dr. Aller G. Ellis, of Bangkok, Siam, discusses Betelnut Chewing and its Effects, including Cancer of the Mouth. Whether the (so-called) betelnut, *Areca catechu*, is more used than the leaves of the *Chavica betel* or *Piper betel* is not quite clear. Why the areca nut is called betel nut has yet to be ascertained. “The only reason I have found for giving it the latter name is that the nut is chewed with the betel-leaf,” suggests Dr. Ellis. The practice of betel chewing whilst almost completely preventing decay of the teeth, causes them to become very dark brown, even at times almost black in colour. It also tends to loosen and thus cause a loss of the teeth. This deserves close attention and study and will probably receive it. Summing up, Dr. Ellis claims that betelnut chewing does not frequently cause cancer of the mouth, but there are reasons for believing that, in an as yet undetermined percentages of cases, it does lead to this result.



"Tropical Life" Friend.—No. 197.

FREDERICK BELDING POWER, PH.D., LL.D.

It will be remembered that in January, 1919, Dr. Charles D. Walcott, the popular and gifted Secretary of the Smithsonian Institute, at Washington, was "Our Friend," and no name in our Gallery of Immortals deserves better of our respect and good wishes than Dr. Walcott.

We were reminded of this when we read, a little time back, that Dr. Walcott, who is also the President of the National Academy of Sciences in America, at the Assembly Hall of the Cosmos Club at Washington, presented the above medal, bearing an excellent bas-relief portrait of the receiver, to "Our Friend" this month, and just before doing so he made the following remarks to Dr. Power and the others present.

"Ladies and Gentlemen,—We have gathered here this afternoon to do honour to Dr. Frederick Belding Power, who for fifty years has spent his thinking hours among the complicated molecules of organic compounds; who, because he possesses that peculiar faculty of exhausting each subject which he takes up, has had the greatest influence both in America and Great Britain in raising the standard of our pharmacopœias; who has gained distinction by his most difficult and life-consuming researches into the chemical composition of plant compounds.

"As a lasting tribute to these fifty years of research and in commemoration of those which he spent as Director of the Wellcome Chemical Research Laboratories of London, I have been asked by Mr. Henry S. Wellcome, their founder, to present him with this gold medal, which bears the following inscription:—

To
FREDERICK B. POWER,
Ph.D., LL.D.,
in recognition of his
distinguished services to
science during eighteen and a half years
as Director of the Wellcome
Chemical Research Laboratories,
London.
Presented by the founder,
Henry S. Wellcome, 1914.

"Doctor Power graduated from the Philadelphia College of Pharmacy in 1874, in the same class with his life-long friend, Mr. Wellcome, who urged him to pursue his studies in Germany. He spent the years from 1876 to 1880 in Strassburg, becoming the assistant to Flueckiger, one of the greatest pharmacologists

of Europe. Returning to America, he spent nine years in the organizing and building up of the Department and School of Pharmacy in the University of Wisconsin, four years in researches on essential oils in a newly organized chemical works near New York, until in 1896 Mr. Wellcome appointed him Director of his chemical research laboratories in London. For eighteen and one-half years he devoted his time exclusively to chemical research and the direction of a staff of research workers under him. One hundred and seventy important scientific memoirs were published from the laboratories during this period. These covered a wide field of investigation for which material was obtained from all parts of the world. Among these a very notable and complete study was made of the East Indian chaulmoogra oil, which resulted in the discovery of some physiologically active acids of an entirely new type. These form the basis of the new treatment of leprosy which gives promise of effecting a complete cure of one of the most terrible diseases of mankind.

"During these years in London Dr. Power had the opportunity of meeting and forming the close friendship of the foremost scientific men of Great Britain. The recognition of his work by the leading chemists and other scientists of Europe would be perhaps exemplified in the high tribute paid to him by the late Lord Moulton, one of the most learned and versatile men in Europe, who was entrusted by Lord Kitchener with the task of producing the high explosives for the war. Shortly before his death, he chided Mr. Wellcome for permitting Dr. Power (who for family reasons had returned to America) to leave Great Britain, for, as he remarked, 'there was no one in Europe who could fill his place.'

"In 1908 the University of Wisconsin, commemorating the twenty-fifth anniversary of the formation of its Department of Pharmacy, conferred upon Dr. Power, its founder, the degree of LL.D., and in 1913 the Chemical, Linnean and Pharmaceutical Societies of London awarded him the Hanbury gold medal, a distinction only once previously bestowed upon an American. This was followed by the presentation of an illuminated address and an album containing the signatures of contributors from many parts of the world.

"Dr. Power, in recognition of your distinguished services to science and in commemoration of the years which you spent as Director of a laboratory devoted to chemical research, I have the honour to present to you this gold medal of appreciation from your life-long friend, Mr. Henry S. Wellcome, who although with us this afternoon, is unfortunately prevented by a severe throat affection from addressing us himself. In presenting it he wishes to explain that war conditions have prevented its earlier execution and presentation."

Dr. Power in reply said: "I cannot but be reminded that it is just twenty-five years ago this month when I left America for London to undertake the organization of the Chemical Research Laboratories which Mr. Wellcome desired to establish, and that the first public announcement of his purpose was made on the evening of July 21st, 1896, in a beautiful saloon of the great metropolis, where a number of the most distinguished scientific men of England were assembled."

Business Notices.

1.—The address of TROPICAL LIFE is Messrs. BALE, SONS AND DANIELSSON, Ltd., 83-91, Great Titchfield Street, London, W.

2.—All literary communications should be addressed to the Editor, and accompanied by the necessary stamps for their return if not accepted.

3.—All business communications and payments, either for subscriptions or advertisements, should be sent to the Publishers of TROPICAL LIFE. Cheques to be crossed The Union of London and Smiths Bank, Ltd.

4.—The Subscription, which is Twenty Shillings per annum, may commence at any time, and is payable in advance. Life Subscription, £10.

5.—The Advertisement Department is at 5, Great Tower Street, E.C., where all inquiries respecting advertisements, charges, &c., should be addressed c/o the Manager of the Department. At the same time will advertisers kindly note that all copy and blocks for advertisements must be sent to 5, Great Tower Street, E.C., before the thirteenth of each month, failing which, insertion of same in current month cannot be guaranteed.

6.—The Publishers reserve the right of refusing any advertisement, or the matter or "copy" sent in for any advertisement. They would also be glad if advertisers would refrain from using the "powerful" or extra heavy type that some adopt at times. Doing so renders the paper unsightly, and is unfair to the other advertisers as well as to ourselves. If all used such type, no one would benefit; to allow some to do so and not others, would be unfair.

7.—Advertisers are only entitled to three changes of matter in the year of twelve issues, unless (1) they send electros for insertion, or (2) are willing to pay for the cost of setting up the advertisement. Owing to present high cost of composition and printing work we cannot depart from this rule.

8.—Changes of address should be promptly notified.

9.—Non-receipt of copies of the Journal should be notified to the Publishers.

10.—The Journal will be issued on or about the twentieth of the month.

The Managing Director and Editor of "Tropical Life" will be pleased to consider the printing and publishing of useful technical works on Tropical Agriculture, Medicine, or other subjects dealing with the development of our Colonies and the Tropics generally, as well as similar books dealing with Russia, Japan and the East, whether the books are to be published in English or other languages.

Tropical Life.

NOVEMBER, 1921.

Mr. L. C. ("Laurie") Brown on the Dwarf Coconut.

It will be remembered that at the end of the second edition of Messrs. Munro and Brown's book, "A Practical Guide to Coconut Planting," which we issued a few months ago, was added some notes on the dwarf coconut, and particularly on that variety, which is the sole crop of the Sungei Nipah Estate near to Port Dickson in Negri Sembilan, of which Mr. Will P. Handover has charge. Whatever else Mr. Handover has done, his careful work and subsequent reports and articles on that work has brought the question of dwarf coconut cultivation to the forefront of tropical industries, and there it seems likely to remain. Lucky Dwarfs.

Like ourselves, however, Mr. L. C. Brown (who was formerly, of course, Inspector of Coconuts out in Malaya) is fearful of the dwarf variety or varieties having more of a halo than they deserve through being given a certificate of good conduct which has been drawn up before the various grounds on which everything depends have been fully examined and

their merits established. As we thought at the time, it might turn out that the conclusions arrived at by those reading Mr. Handover's articles would be too hypothetical, and if this is the case, they may seriously mislead both the public and the planters. On this point Mr. Brown writes us as follows:—

"In answer and, I would say, in support of the information you inquire for in your note below, pp. 184 and 185 of the appendix you contributed to the second edition of our book on coconuts, I have written my views thereon and given what is actually required before the profits accruing from dwarf coconuts can be considered as properly estimated and reliable. These notes I have sent to the *Planter* of Kuala Lumpur, which published them in their August issue (pp. 7 and 9, sent herewith)."

As the matter has attracted so much attention, and since everyone cannot secure copies of this issue of the *Planter*, we feel justified in reproducing Mr. Brown's notes in full, prefacing them only with a few lines out of Mr. Handover's letter to us, dated last January, in which he says: "The crop for 1920, off the 250 acres, was 737,000 nuts; this is not bad, for had I been able to have cultivated the place as I should liked to have done from the start, I think my anticipation of a million nuts would have been justified. I am still of opinion that this dwarf nut originates from Java, as the oldest trees I can gather the history of are from there."

Now for Mr. Brown's views:—

"The 'Dwarf' or 'King' Coconut is attracting a certain amount of attention at present, chiefly through the articles written by Mr. Handover, who is so thoroughly and consistently optimistic as to be more or less convincing, and as it is possible that these articles may influence prospective investors, the statements and predictions made require careful investigation."

"In an article, published in September-October, 1919, of the *F.M.S. Agricultural Bulletin* and reproduced in the *Planter's* issue of August, 1920, Mr. Handover arrives at certain estimates, from various data, principally the following:—

"Trees 30 years old or so occur in different parts of the Malay Peninsula, and many of them still bear abundantly."

"A spike from a 6-year-old palm has been noted with 200 female flowers, while trusses of fruit from similar trees have been found with as many as 55 ripe nuts."

"Six-year-old palms have been counted with as many as 234 nuts on (excluding ovules), and the trees average 80 nuts a year."

"The only figures available are those from Sungei Nipah."

"In 1912, 500 acres were planted with dwarf coconuts at Sungei Nipah."

"The yield of individual trees, or clumps of trees, planted in and around kampongs, is no safe basis for a scale of production on large areas. In 'A Practical Guide to Coconut Planting,' by R. W. Munro and L. C. Brown, we note: 'Some very fine palms may be seen in these small plantations, yielding in certain cases an average of quite 100 nuts a tree per annum.' Were we to take this as the basis of an estimate of

yield, the result would be, assuming 48 trees an acre, 4,800 nuts, or 21 pikuls of copra an acre, whereas the actual returns from estates under European management give an average of anything from 7 to 12 pikuls. (The reference here is, of course, to the ordinary palm.) No estimate of practical value can be made except from authentic figures of production from areas of commercial extent, extending over a few years, and with the exception of those from the comparatively small area on Sungei Nipah, none such are available with regard to the dwarf coconut.

"In Mr. Handover's article, quoted above, the following is given as a conservative estimate of production:—

" End of 4th year	...	10	nuts a tree.
" 5th "	...	30	"
" 6th "	...	60	"
" 7th "	...	80	"
" 8th "	...	100	"
<hr/>			
		280	nuts a tree.

"At 90 trees an acre, and allowing 500 nuts to one pikul of copra, this would give 50 pikuls of copra an acre to the end of the eighth year from planting.

"In a more recent article, Mr. Handover gives the actual results from Sungei Nipah, as follows:—

" End of 5th year	...	1	pikul an acre.
" 6th "	...	5.7	pikuls an acre.
" 7th "	...	3.6	"
" 8th "	...	5.9	"
<hr/>			
		16.2	pikuls an acre.

Allowing for cultivation being neglected and the loss caused by pests, &c., it is difficult, if not impossible, to reconcile Mr. Handover's estimates with his actual results. The return is less than one-third of the prediction.

"The actual crop of 5.9 pikuls copra an acre in the eighth year does not compare favourably with the ordinary coconut grown on alluvial or other suitable soil, from which 1,503 or 6.6 pikuls of copra an acre is an estimate repeatedly reached and frequently exceeded at the same age. It should also be noted that costs are higher in the case of the dwarf coconut, as more than twice the number of nuts have to be handled in the process of copra manufacture as compared with the ordinary nut.

"The returns from Sungei Nipah appear to confirm the observations appearing on page 37 of the manual referred to:—

"From our observations so far, we incline to the opinion that the King variety will require rather high cultivation in order to obtain satisfactory returns, and may then possibly yield as much as an average of 75 nuts a tree per annum."

"It seems to me that Mr. Handover's predictions have been formulated in a spirit of enthusiastic optimism, without sufficient available actual results and data, and until such are available a good deal of caution should be exercised by potential investors and the public generally. Mr. Handover has not yet estab-

lished the equality of the King with the ordinary coconut tree, far less its superiority, and as for the comparison with rubber, in normal times, the question does not arise, as they say in another place.

"I have been deeply interested in and connected with coconut cultivation for over fifty years, and it must not be assumed, from what I have written above, that I have any bias against the 'Dwarf' variety, or any wish to thwart a new enterprise or discourage its introduction on a commercial scale in Malaya. Far from it. When Sungei Nipah was being opened up, I took the keenest interest in the experiment, and visited the estate on many occasions with the manager, Mr. Cunningham, and even made special reference to it in my official report to the F.M.S. Government. What I feel is, that results have been very disappointing, and that the enterprise is being inflated beyond its merits. The two most important factors in determining the value of the 'Dwarf' cultivation have not yet been ascertained and established definitely. The first is the age at which the tree ceases to be productive; the other, whether the tree is likely to give average good crops year by year during its productive life. When these points have been satisfactorily established there will be material for the construction of a reliable scale of production and profit. It is admitted that individual dwarf coconuts yield prolific crops, and other advantages are very clearly detailed in the book above referred to (page 37), and I still incline to the view that with high cultivation, this should be a sound and moderately remunerative investment. However, the industry as a commercial proposition is yet in the experimental stage, and until such time as actual figures and data are available, hypothetical estimates and scales of production and profits should be regarded with great caution and reserve.

"At the same time I must say that I appreciate highly the courage of Mr. Handover in experimenting and undertaking the pioneer work for an industry in which, obviously, he has such faith, and trust he will yet have a due measure of success. While I criticize his predictions, I admire his altruism."

The Enterprise of the Elder-Dempster Line.

THEIR NEW STEAMER, THE "ABA," THE FIRST OCEAN MOTOR LINER.

If you refer to our contemporary, *West Africa*, for November 19th, you will find, on p. 1449, a photograph of the new Elder-Dempster express service motor liner, the *Aba*, and underneath that a portrait of Captain J. Hughes, the skipper of this pioneer boat in the ocean transport world. We should much have liked to reproduce the two photographs in our own pages, but there is not time to do so even if we could have made space; as it is we have held up a short article on "Drying Bananas" to make room for these few remarks on the new boat.

The *Aba*, our contemporary explains, is 450 ft. in length and 55 ft. 6 in. in breadth; her depth is 33 ft., and the gross register about 8,000 tons. She is divided

into eight watertight compartments by seven bulkheads, and has a double bottom extending right fore and aft. Two forward tanks are adapted for carrying fresh water, and the remainder of the double bottom (except the portion under the engines) is arranged to carry either oil fuel or water ballast. Under the engines the space is divided into three compartments, the centre being adapted for lubricating oil and the wings for piston-cooling water. Oil fuel is also carried in tanks built between the shaft tunnels. Accommodation is provided for about 255 first-class passengers and 140 other passengers, besides the officers and crew.

Messrs. Burmeister and Wain are the originators of the type of engine used, and the steamer was built by Messrs. Harland and Wolff, of which Lord Pirrie is head, as Sir Owen Philipps is chairman of Messrs. Elder-Dempster and Co., Ltd.

Presiding at the dinner given by Sir Owen to a large and distinguished company on board the new motor liner, he told those present that the *Aba* marks a revolution in marine engineering and naval architecture. "There are," he stated at a later period in his speech, "difficult times ahead of us, but if we all do our utmost in our respective spheres, and work together in a spirit of mutual helpfulness and goodwill, I am confident that trade in general, and West African trade in particular, will not only be restored, but will progress and prosper."

The chairman of Elder-Dempster's confirmed our views that the first thing Africa, and especially the Gold Coast, needs is internal transport; spread a network of railways, light and heavy, along organized routes, and then, but not until these railways are built and busy, shall we need Takoradi harbour, nor will the Coast be able to pay for it. "The country could not be developed beyond its population," said Colonel Nicholl, who also spoke, "and the population was limited. They hoped, by the development of railways, roads, &c., to free a large proportion of (at present merely) transport labour and turn it into more productive channels." Here again, therefore, the cry is for land transport to start with.

Coal in the Philippines.

Now that coal is so costly, and no one wants to say that it will go cheaper for a good while yet, although if it dropped 50 per cent. in price it would still be over-dear, one cannot help wondering what the Philippine Islands are doing with their coal. The tremendous incentive the demands of the agitators in this country have given to America and elsewhere to develop their coal trade whilst prices are so high ought to have caused the Philippines, among other centres, to get busy. Five years ago we were told by the Bureau of Science over there that coal was universal throughout the islands, and many articles and reports were published on the subject. What has resulted from all these labours?

So far as we can remember, the data which the Bureau of Science accumulated at that time concerning the quantity and quality of the Philippine coal fields enabled it to make intelligent estimates of the

recoverable tonnages of different grades. In quality, it was claimed, the coal ranged from black lignite to semi-anthracite. Conservative estimates showed that there was "in sight" at least 3,500,000 tons of black lignite and 1,000,000 tons of sub-bituminous coal, while the probable tonnage was put at well over 60,000,000 tons, say, black lignite, 26,500,000; sub-bituminous, 31,500,000; bituminous or semi-anthracite, 3,500,000; but the full possible tonnages must be greater than this, although the largest annual (1909) production to 1916 was only 30,336 metric tons valued at 197,184 pesos. Owing chiefly to lack of development, the production declined after 1909; one wonders if it is pulling up now. There are several reasons which make the establishment of coal mining in the Philippine Islands difficult, Mr. Alvin Cox reported at the time. Two of the greatest of these are: first, the coal is not of superior quality and is liable to spontaneous combustion both in the mine and in storage; secondly, the seams of best coal are sometimes faulted, and there is discontinuity of the seams. Before the work of extensively mining the proper grades of Philippine coals, which are high in moisture and volatile combustible matter is undertaken, it was considered desirable to carry on further work to ascertain beforehand the type of stationary and marine boiler furnaces most suited to such coals, we have yet to hear whether this has been done. With the present high prices of coal, any substitution might be marketable, but if freight rates become reduced and the competition of oil fuels, &c., becomes keener, the development of seams except those of the bituminous grade which can better stand such competition will probably stand still. China also, of course, has immense resources for coal, as we called attention to in September, 1912, when we quoted an estimate that China has 419,000 square miles underlain with coal, and that a single province—Shen-si—could supply the whole world for a thousand years.

THE forty-fourth Christmas number of *Truth* (price 1s. 6d., inland 1s. 7½d., abroad, 1s. 8d., post free) maintains the style and spirit of its predecessors as a humorous and satirical review of the times. Its principal feature introduces the reader to a new discoverer in the person of Flight-Lieut. G. Lemuel Gulliver, ninth in descent from Swift's hero, who has been on an air-trip to the flying island of Laputa. Laputa, it seems, still bears some resemblance to England, but, like England, it has made remarkable progress since Swift's time. The reader will observe this in such inventions as the "Hyflopter" for shooting passengers across the island by compressed air, and the "Gioitoddl" for relieving the congestion of traffic in the shopping thoroughfares. The development of the daily papers into side-lines of the principal commercial houses, insurance companies, and banks may or may not be an improvement, but the new Gulliver's account of the annual national festival of "Heidekker," at which Royal honours are conferred, is instructive and amusing. The enterprising visitor has picked up some interesting information in a very confidential interview with the King, and learned a great deal about local

politics from his chief Minister, the "Pea-Yem," who, by a curious coincidence, has lately effected a sort of Coalition among the Laputan notables, or Pann-giandrms. Altogether, the new Gulliver is quite as entertaining as his ancestor, and probably not more untruthful. Mr. Stanger Pritchard has played up to him well in numerous illustrations of local life and customs.

Trade, Politics and Finance.

At last—as can be seen by the table that always concludes these notes—the Bank Rate in London has been reduced to 5 per cent. This was done on November 3rd. Let us hope that trade will be stimulated and unemployment grow less now that we have money at so reasonable a cost. Surely Labour or Capital, whichever is to blame, and probably it is both, have realized by now that costs have been above the spending capacity of the world and until they are substantially reduced, both by lower wages and larger outputs, the world cannot and will not buy.

Are we better off or far less wealthy than before the war? Does anyone need to be told which? And since we have much less wealth, why will everyone, especially our own people, persist in still charging us double, and more than double, pre-war rates? Great Britain owes the United States £833,000,000, France owes them £670,000,000, Italy £330,000,000, whilst the rest of Europe brings the debt to over £2,000,000,000. Think of the interest and accrued interest due on this huge sum, and then ask how can and why should the U.K. pay 50 per cent. more for bread and meat than we need do and 100 to 150 per cent. more on other necessities? Can nothing be done at once, as was done in 1920 with raw materials, to squeeze the holders-up of the finished articles and make them sell out? Producers have had their losses cut, manufacturers say they are willing and anxious to cut theirs and get rid of their stocks. If this is true, then it is only the distributors and especially, so it seems to us, the privately owned smaller shops catering for an ignorant (but won't-be-told) working-class who, knowing their customers, are still pinching them hard. Wherever the blame rests, however, clothes, gas, coal, local rates and food are much too high. The fact that they are unevenly so, some places being less overcharged than others, shows that excessive costs are not necessary. All they are doing is to hold up trade, to ruin the future prospects for producers abroad, and—worst of all—according to our prison reports, they are giving the overpaid, or formerly overpaid, worker so fictitious an outlook that he has taken to steal his luxuries (not necessities) rather than go without them.

As we start to write these notes, on November 12th, the German mark is said to have touched 1,100 to the £ stage, or about \$3.93c. U.S. currency, after going over 1,300 marks unofficially or 1,275 officially. So long as it remains in that neighbourhood, a hundred or two more or less does not matter. It is only Germany's way of being honest. Having undertaken to play square she immediately starts to go crooked or not to discourage others from doing so.

If Germany did not want the mark to be worth

less than a farthing it would not have become so, because the Reichsbank would not have rivalled Russia in the rate at which it turned out paper money. Elsewhere also the extravagance, which everyone and every paper that knows Germany claims is so rampant over there, would not be allowed much less encouraged as is believed to be the case. "We have money," says Germany, "we can no longer pretend we have not, but we will 'burn' it before we pay our war debts with it." And the Allies, being without a backbone, are allowing her to turn its money into paper to "burn" and thus run down the value of the mark.

Ask those interested in furs and ivory how the last sales went off and if German buyers did not pay the best prices for them in London the other day?

Read the *Observer* of Sunday, November 6th, and see if they do not say all that we have just said and more. Two months ago Lord Beaverbrook said that "there is nothing in the industrial position in Germany to justify the rate at which she is living. As inflation increases and the value of the mark declines, her spending increases and the recklessness of the whole proceeding is beyond belief." This was on September 12th, now on November 12th the pace is hotter than ever, and it will go on and on until the financial tyre rips and Germany will say she is bankrupt as a government, the same as any dishonest bankrupt becomes through extravagant living; but outside Germany the individuals are by no means bankrupt; take stock and see if this is not true. For Germany is not the whole world, and if you want to find solid German wealth which is not being wasted, look for it outside the Fatherland. The Allies would do quite well if they only canvassed Latin America and could grab the German-owned wealth that is there. Think of the millions in Argentina, the hundreds of thousands in Brazil, and the little flea-bite like the Krupp deal in Chili. Whilst Germany is evading International Law in Europe and ruining the world's trade, thanks to the valueless mark and her low-priced goods, she is digging herself in firmly and securely throughout Latin America whilst the hyphenated wealth in the United States must be increasing steadily as the paper wealth increases in and the mark value decreases in Berlin. Whilst this goes on the Allied Exchequers can whistle for their money, and their factories and workpeople can whistle for orders and employment. Did not Bismarck say that as a nation the British were to be avoided in war and laughed at in finance? If he did not, is such a remark an exaggeration? If you want to know how and where Germany is making hard cash and not burning paper money, read the South American papers, the *West Coast Leader* of Lima, Peru, to start with, it is published in English.

Now let us change the subject and take note of one or two publications that have come our way. First, we have to thank the London and Brazilian Bank, Ltd., for the October issue of their Trade Report for South America. Here we are glad to see that although it cannot be affirmed that the general outlook in Brazil is quite satisfactory, signs are not wanting of a decidedly improved tone all round. Germany seems doing plenty of trade with Argentina, and Germany does not work for nothing.

Messrs. Hollings and Guest, Ltd., of Thimble Mill

Lane, Birmingham, have issued an excellent list of presses for extracting oil, fruit essences, copra oil, cider, &c., together with the pumps for working same. A little time back we received a photo of their Standard Tyre Press at work at Benkoden, Sumatra, which has interested all those we showed it to.

We have also received a pamphlet from the Blackman Export Co., Ltd., of 374, Euston Road, London, N.W.1, which discusses air heating along lines which we believe will be found of use for copra and cacao drying, &c., especially their tubular heater, about which we hope to have something to say in a separate article in a (near) future issue. Meanwhile everyone interested in drying would be well advised to write for a copy.

Messrs. Shirliffe Bros., Ltd., write from Letchworth that they are working steadily to turn out their presses on the latest approved lines so that they will be exactly as required when orders come to hand, and thus avoid loss of time to those who are already fretting at the difficulty of being fixed up owing to the question of cost and finance.

Coming to market gossip, we have borrowed the following from the report of the London and Brazilian Bank, Ltd., regarding coffee in Brazil, where the Government still continues to buy coffee under its valorization scheme. The President of the Republic, during his recent visit to the State of Sao Paulo, declared in his official speeches that he had the means at his disposal to carry the scheme to a successful issue and that he intended to do so.

The amount of coffee actually paid for and stored for account of the Government is estimated at 1,300,000 bags in Rio de Janeiro and 2,200,000 bags at Santos, and there will probably be further stocks to add to this before exports commence to move freely. Notwithstanding this, the general feeling in the coffee trade is quite optimistic, in view of the strong statistical position which this commodity now occupies in the world market, and few doubts are expressed as to the ability of the Brazilian Government to carry out the scheme successfully. The severe drought which occurred in the States of Rio, Minas Geraes, Sao Paulo and Espirito Santo may affect the coming crop and thus reduce the estimated available stocks next year, though considerable rain has fallen lately over this area.

Coming to London, Jamaica grades have been selling at 122s. for middling, 132s. to 140s. for good greenish and colory, and 133s. for peaberry. Bold fair Colombian realized 96s. to 105s., whilst of other kinds, Costa Ricas realized as high as 129s. to 133s. 6d., for good middling colory, 140s. 6d. to 149s. for good greenish, 156s. 6d. for fine, and 160s. 6d. for peaberry.

The cotton market on this side is weak at 10.59d. for fully middling and unable to touch 11d. at any future point. High distributing prices have apparently (quite unnecessarily) killed the demand, for were retail prices to be on a popular basis, instead of 200 per cent. and more above what it should be, rates for the raw material would not drag and the tendency continue so weak. Yet recent advices from Pernambuco spoke of very favourable reports, with considerable inquiry from the U.K., so that the general outlook is regarded as quite bright. The home demand for cotton in Brazil, coupled with the rapid rise in

New York, sent up prices (in Brazil) considerably. Sakel Egyptian is lower, around 19d. per lb.

With fibres, Manila is worth £38, New Zealand £40, Sisal is not quoted, Shellac is at 340s. to 350s. for T.N. and 290s. for A.C. Garnet. Palm Kernels are at £17 15s. against £35 last year. Copper is worth about £66 7s. 6d., and Tin £157.

Coming to finance, the following is a comparison of the principal points on the returns of the Bank of England on November 12th, compared with a year ago:—

November 12th.	1921	1920
Bank Bullion	... £128,420,853	£123,477,498
Reserve of Notes	... 20,651,445	12,343,825
Private Securities	... 80,833,565	73,222,341
Notes in Circulation	... 124,403,190	127,847,980
Rate of Discount	... 5 per cent.	7 per cent.
Price of 2½% Consols	... 40½	45
Price of Bar Silver	... 38½d.	53½d.

The London Cocoa Market.

BY THE EDITOR.

THIS is not the first cocoa market report that I have written and I trust it will not be the last by a long way, but it strikes me as being one of the most puzzling. That does not mean that I have nothing to say, for I have plenty, quite a pile of notes, but then I do not write, and never have written to record past history, but to try and guide producers, exporters and buyers as to which course it may be best for their interests to take between now and—let us say—next March is more than difficult. It is this which makes this report and, in fact, any report on tropical produce, such a puzzle to write just now.

In their anxiety to fool others, Germany runs, in my opinion, every chance of fooling themselves in the end, and it is because I believe they will do so that I find it so difficult and altogether so unsatisfactory to sit down and try to offer suggestions as to how the English and the International cocoa market will go, especially the Hamburg market, between now and the spring.

Far from forming a reliable opinion of how the German mark will go for six months, one cannot say how it will go for six days or even six successive hours. So great have the fluctuations been that the general public have lost all interest in them because they have lost the sense of proportion, as they did long ago with Russian roubles or the Polish or Viennese exchange. If the mark went 1,300 to the £ instead of 100, argues the man-in-the-street, then German goods should cost but one-thirteenth of their former price; since, however, nothing is cheaper, and we are being overcharged and overtaxed as rigorously as ever, the public finds that whoever makes the profit out of marks at five a penny they can buy no cheaper and so are not interested.

All the same, to the tropical planter, as stated elsewhere in this paper, Germany's tactics in this, her commercial and financial war as with her military and political one, must be followed very closely, as they will affect, as they have affected, the produce markets as seriously and perhaps more so than the Great War did.

During one week marks were officially stated to have been 900, 1,000, 1,250, and even 1,275 to the £, or to less than \$4 American; but unofficially there is little doubt that the extreme rates paid were fifty marks beyond any official quotation, and Germany has only just started. What effect, therefore, each planter and shipper must ask himself, will such fluctuations and such depreciations have on *my* cocoa? Do not trouble too much about other people's cocoa just now. Watch exchanges first and your own cocoa (or other produce) carefully, and as for anything else, there is no place for them, do not let them count so far as you are concerned, any more than the tag-end horses do in a race; they are merely in the running.

At the present moment London is having a rest. Liverpool seems inclined to follow suit, whilst America and France are busy getting rid of the last of their accumulations. When this task has been completed, their positions will improve. Germany (probably knowing what was coming) set the pace and put fair fermented Accras up to 50s. before the bottom was allowed to drop out of the German mark, which was *after* the new import duties came into force.

If you buy cocoa at 350 to 400 marks to the £, or its equivalent in francs, you can sell at 300 per cent. profit, I take it, if the mark goes to 1,050 or 1,250 to the £. How much cocoa is there around, I wonder, which belongs to the German owners who, having bought on the above basis, may resell? Is it any wonder that the demand has slumped and Accras are under 40s. with this competition on the offing, if not actually in port under your nose?

Two growths seem fairly immune from all this. Trinidad and Bahia, because their cocoa is less dependent on Europe, except perhaps for the middling and lower Trinidads. As such grades should not be turned out in these days, no sympathy need be wasted here, and besides, France is and always has been quite a good friend of Trinidad, more so, I fear, than the U.K. *En passant*, let us look at the figures, and then compare them with Mons. Alleaume's from Havre. Whilst doing so, it must be remembered that a considerable quantity was re-exported from the U.K., about 16,000 bags to November 5th, against 28,000 in 1920.

Trinidad Exports—Crop year—October 1st.—September 30th—

Consigned to—	England Bags	France Bags	U.S.A. Bags	Total Bags
1920-21 ...	34,805	79,932	226,381	= 341,118
1919-20 ...	52,814	114,428	154,079	= 322,191
1918-19 ...	64,775	145,395	119,217	= 329,387
1917-18 ...	43,967	13,600	213,016	= 270,583

In spite of the above, Havre herself took very little Trinidad, say, only 10,837 bags to the end of October (ten months), against 91,231 bags last year and 60,191 in 1919. Her deliveries of this growth ran more evenly, say, 34,585 bags, against 58,556, against 32,000 bags in 1919.

Whilst about it, let us compare the London and Havre movements in full, so as to see what comes to these two ports and what goes elsewhere. Liverpool, of course, is mainly West African, including Lagos and Cameroons, but she has parcels of other kinds as well. Bordeaux probably runs a little different to Havre (it is so long since I saw details of a Bordeaux stock that I really forget), but with what

follows, and noting what New York receives, it can pretty well be seen what goes direct—including San Thomé—to Germany, which country will, I am sure, still go on buying cocoa and tropical produce when it pays her to do so, that is when exchange—between the periods of reparation payments—is allowed to improve. Failing this, if Germany still wants to buy, she can do so, as the amount of cash or its equivalent that she has outside Germany is substantial and could be utilized, although this can only be surmised, not actually reckoned. Switzerland already is complaining at the appreciation of her franc, which makes her own people suffer, but which suits the German financier no doubt.

Havre Movements—January to October.

	1921 Bags	Landed 1920 Bags	1919 Bags	1921 Bags	Delivered 1920 Bags	1919 Bags
Para ...	10,119	13,705	33,341	14,850	15,875	16,590
Bahia ...	10,517	93,753	83,623	34,239	69,612	60,775
Venezuela ...	31,443	52,909	27,904	30,871	41,287	14,384
Trinidad ...	10,837	91,231	60,191	34,585	58,556	31,999
Accras ...	91,921	90,795	174,991	102,164	108,798	103,761
San Thomé ...	1,663	135,636	49,675	20,571	109,773	10,336
Guayaquil ...	9,744	32,568	123,642	12,688	89,009	72,343
Haiti ...	5,171	45,752	27,783	15,505	20,464	11,668
San Domingo...	876	47,202	9,628	20,698	7,336	5,366
Others ...	18,593	45,565	16,477	27,917	22,849	8,829
Total ..	190,884	649,116	607,255	314,088	543,559	336,051

This year during the above ten months not a bag of Grenadas or O.W.I. is returned as having entered Havre. Last year only 751 bags went in, but in 1919 they received 10,296 bags, mainly Grenadas in all probability.

Now coming to London, from January 1st to November 5th, we find the figures to be as under:

	1921 Bags	Landed 1920 Bags	1919 Bags	Del'd H.C. and 1921 Bags	1920 Bags	Export. 1919 Bags
Trinidad ...	20,616	62,214	65,386	31,366	52,115	52,232
Grenada ...	39,986	44,771	30,918	43,258	33,712	22,985
Other W.I. ...	18,664	30,063	21,739	22,477	16,213	16,717
British African	45,969	112,687	81,113	43,927	116,194	77,754
Portuguese } African }	1,955	802	20,614	3,317	25,328	39,731
Cameroons ...	—	—	2,645	74	1,110	871
Ceylon and Java	16,493	26,406	17,020	26,465	14,605	18,586
Guayaquil ...	8,228	98,296	81,788	47,088	31,817	83,833
Bahia and Brazil	450	1,815	1,950	1,076	2,922	693
Other foreign ...	16,067	54,787	15,959	32,278	22,275	9,270
Total ...	168,428	431,841	339,132	251,326	316,291	327,672

Liverpool movements to the end of October, but with stocks given only at the end of September, were:—

Liverpool Movements.

	Landed Bags	Jan.-Oct.	Delivered Bags	Stock, Sept. 31st Bags
1919 ...	1,056,358	...	126,104	172,170
1920 ...	1,135,952	...	195,165	345,364
1921 ...	618,294	...	554,485	201,374

Now let us look at stocks all round and note the drop. What else could we expect with small receipts the rule on all sides? Lisbon, for instance, received during the nine months, January-September, 281,307 bags, whilst she delivered 325,111, hence the run down in her stock which started with only 89,352 bags, so that with nearly 44,000 knocked out we come to the 45,546 bags, as shown on p. 175:

	Bags 1921	Bags 1920	Bags 1919
London Stock, Nov. 12th ...	113,489	233,508	106,790
Liverpool " Oct. 31st ...			
Havre " " ...	186,374	338,457	280,619
Bordeaux " " ...	74,448	100,809	122,766
Lisbon Sept. 31st ...	45,546	118,503	198,531
New York "			

There are other stocks, the German, Dutch, Swiss, &c., but these are enough to show how things wag at the moment. What a good thing we are as we are, and have not had bumper crops like the 1919-20 Bahia crop to contend with. And that reminds me, but no—one thing at a time. Here are the details of the accumulations in London and at Havre; after that a word or two on the drop in the Bahia crop.

LONDON STOCK, Nov. 12th: —	1921	1920	1919	1918
	Bags	Bags	Bags	Pre-war
Trinidads ...	19,168	32,893	30,445	11,462
Grenadas ...	16,565	24,865	14,680	2,540
Other W.I. ...	8,543	20,143	6,323	3,595
British African ...	12,781	17,934	20,010	5,333
Portuguese African ...	846	23	3,808	6,080
Cameroons ...	1,351	1,378	3,093	2,903
Ceylon and Java ...	9,175	19,039	6,547	11,847
Guayaquil ...	28,325	75,462	8,395	20,535
Bahia and Brazil ...	82	1,216	2,636	1,936
Other foreign ...	16,153	40,555	10,853	9,316
Totals ...	113,489	233,508	106,790	75,547

	Stock Bags 1921	Paris, Fcs. 54'08 New York, £ = \$3'93 Value Fcs.	Stock Bags 1920	Paris, Fcs. 58'50 New York, £ = \$3'36 Value Fcs.
HAVRE, Oct. 31st.				
Pará ...	6,206	118 to 128	7,354	212 to 220
Bahia ...	20,496	118 ,, 141	43,327	185 ,, 203
Venezuela ...	25,090	138 ,, 268	29,830	225 ,, 305
Trinidads ...	21,511	135 ,, 140	55,300	212 ,, 215
Grenada & O.W.I. ...	10	115 ,, 135	10	198 ,, 212
San Thomé ...	21,206	97 ,, 141	45,539	175 ,, 210
San Domingo ...	24,446	103 ,, 115	40,619	183 ,, 188
Haiti ...	25,742	82 ,, 105	36,838	167 ,, 198
Accras ...	15,032	115 ,, 118	36,623	172 ,, 175
Guayaquils ...	9,218	143 ,, 163	13,101	255 ,, 272
Others ...	17,417	—	29,916	—
Totals ...	186,374 bags		338,457 bags	

Coming now to the Board of Trade returns, it is pleasant again to see an increase in the deliveries for Home Consumption. True it is not a large one, but how much better than if it were a decrease. The increase of 1,259 tons in September, added to 923 tons increase in October, makes 2,182 tons to the good in the two months. Here are the full figures:—

October only.	Imported Tons	Del'd H.C. Tons	Exported Tons	Stock Oct 31st. Tons
1913 ...	1,583	2,504	680	9,050
1919 ...	5,606	7,556	6,753	55,100
1920 ...	2,958	3,515	5,270	61,650
1921 ...	1,860	4,438	4,662	36,550
Decr. 1,098		Incr. 923	Decr. 608	Decr. 25,100

January-October.	Imported Tons	Del'd H.C. Tons	Exported Tons
1913 ...	29,107	23,007	5,859
1919 ...	107,240	52,622	18,734
1920 ...	99,600	42,425	35,439
1921 ...	50,432	37,974	22,809
Decr. 49,168		Decr. 4,451	Decr. 12,630

Of foreign manufactured 10,085 tons have gone into Home Consumption during the ten months, against 11,435 tons in 1920.

And now, after two attempts to do so, I want to say a word about the prospects of the current Bahia crop, and here is the right place to do so, as if anything can put some bone into the market, it would be the serious falling away of this growth. What effect will the reduction have on prices not only of Bahias but of other growths as well? This remains to be seen.

Last month I gave the complete Bahia figures for the first four months of the year, showing only 93,018 bags received against 237,300 bags (two-and-a-half times as many) last year. To the middle of October the total of 5½ months' receipts stood at 197,246 bags against 438,594 bags in 1920; whilst with 42,384 bags exported in September (27,234 to Germany) the five months' (May-September) shipments amounted to 178,028 bags against 314,807 bags last year. Summing up, we now know that the first six months' output, i.e., receipts, amounted to only 219,345 bags against 531,085 in 1920. Even the *Journal* of the London Chamber of Commerce has commented on Bahia's abnormally low output of this crop, for it tells us that in view of grossly exaggerated figures that have been published in regard to the cocoa crop of Brazil, the Consul-General for Brazil in London has been instructed by his Government to state that, according to the most reliable estimates, the total production this year of Bahia cocoa cannot exceed 400,000 bags. No wonder the little really Superior over here is being held for 75s. or so. Think what the price will be, later on, in Bahia if this report of its crop is correct. This ought to make Bahias very firm, but if it does, whilst this news came through to London, Grenadas have moved to 52s., and now are quoted even lower for the best marks. Accras which had been up to 50s. for fair fermented have dropped to 39s.

The Gold Coast exports for the nine months, January-September, stood at 88,638 tons against 97,779 in 1920, whilst Lagos shipped 7,590 tons to the end of July (seven months) against 12,893 last year. Those who claim that there is more than enough cocoa about, especially in Africa, urge that the cocoa is there, but the owners will not ship it without an order, as costs, freight, and especially dock charges and rent on this side, are so dear. The cocoa can remain at the producing port quite "comfy" and quite economically. But is such a statement true? Surely not. I have not met anyone with personal knowledge of these centres who will confirm such a tale.

Because Grenadas are down it is now claimed that Trinidads should be lowered in price as well. It is difficult to see why this should be so. I have always understood that the makers, especially the large manufacturers, do not fancy cocoa at too low a level. I certainly find the up-country equivalent on the coast for Accras at 39s. over here too low to be profitable to the dealer or producer in West Africa.

I am glad to see that the paper read by Mr. E. J. Organ (of Messrs. Cadbury's) at the Cocoa Conference in June on "The Gold Coast Industry and its Recent Developments," which we commented on at some length in July, p. 109, has been reprinted in pamphlet

form and issued by the Publication Department at Bournville. If our readers are wise, they will write and ask for a copy; if they do, I am sure that it will be forthcoming.

Mr. A. W. Knapp's paper (also noted in T.L., July, pp. 106-108) has been reproduced, without the discussion, in the current issue of the *Bulletin of the Imperial Institute* (Vol. xix, No. 2; see our Advt., p. viii, price 3s. 10d. post free), with some blocks showing the pests which he discussed so fully and proposed to exterminate so relentlessly. The title of the article remains the same, viz., "Insect Pests in the Cacao Store." This is, I believe, the first time that this important matter has been reduced to paper and discussed. What producer, exporter, wharf-owner or manufacturer, even ship-owner, who handles cocoa is there who can say that the subject does not closely affect their pockets, and who, on that account, should not hasten to secure a copy of the *Bulletin*? The paper reads quite as well as it sounded when delivered, and everyone present spoke well of it then.

In conclusion, I claim that there are no accumulations of cocoa at any producing centre, taking them as a whole, whilst the stores on the Gold Coast are, I feel sure, clearer of cocoa than they have been for some years. The United States market is flat and uncertain at the moment, but once they are quit of the old stuff, raw and manufactured, over there, things will improve. Most accounts point to these old stocks as having gone or nearly so.

Where rather a troublesome vacuum does exist is

in Holland and Switzerland, which countries are practically out of the market, as they have lost the greater portion of their pre-war trade, viz., Central Europe. Germany, of course, has refused to allow manufactured cocoa to cross her boundaries.

At the moment if supplies and stocks are low, the pulse of the world's demand is still lower. It will quicken, probably, when least expected; when it does, it will be amusing to see who gets caught.

Meanwhile, whatever forward prices may be, spot prices, asked or given, are considerably higher except perhaps for Grenadas, Jamaicas, and Other W.I. Just what these most excellent cocoas have done to be so badly treated it is difficult to say, unless it is due to their Imperial or patriotic instincts leading them to believe that there is any substance in the cry, "The British Empire for British produce." Being practically dependent just now on the U.K. for their disposal, West Indian kinds suffer accordingly, so badly indeed that their fate makes one inclined to turn a deaf ear to those who promise so much in the way of Trade within the Empire and to feel that do what you like, but trust no single market if you want fair play.

Against 39s. forward for fair Accras, spot sales are spoken of up to 44s., with 46s. for fine and 35s. to 36s. for f.a.q. If against these it is true that fine Grenadas have changed hands at 50s., even 52s. is too low, then one feels inclined to recall a saying about "The Lord protect you from your friends," especially as even these prices do not enable important sales to be made.

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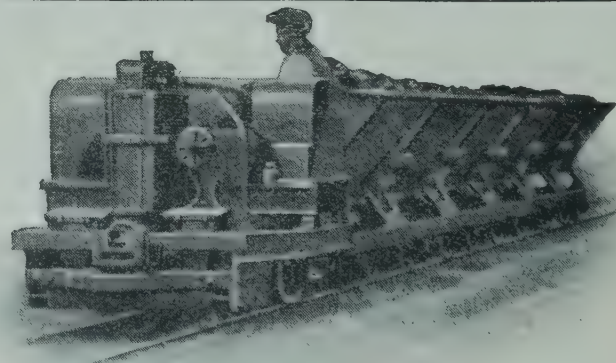


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VOL. XVII.—No. 12.]

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1922. What of It ?

MUCH has been said for and against 1921, the year now passing; both were deserved. The praise for the chances offered to make good, and the blame for the public, who were too blind to see and seize the chances offered them so freely. We have been very foolish during 1921; shall we be so again during 1922, or have we learned our lesson?

So far as this paper and its readers are concerned, the great trouble that we, in the U.K., are up against is to secure orders for goods that can, apparently, only be supplied from our factories at prices which are above the spending capacity of those wishing to buy. Are we alone in this? Is there any country which is not in the same plight? If there is, then that country is Germany, and this she owes to her ability to command respect for law and order and to generate and set flowing freely the will to work. This is missing at least in some portions of the U.K., and those who wish to make good and go ahead are, judging by ourselves, having needless obstacles put in their way, as outlined in detail in our leading article this month (see p. 185). This discouragement is causing the atmosphere generally to turn aside everything that tends to steady application and serious effort. Quietly taking stock, year in and year out, one cannot help feeling that the main idea is to let everything slide, so that those who have the good berths, with or without their war bonuses, can keep them even if, to do so, those under them are paid an unfairly high wage—out of the taxpayers' pockets—so that there shall be no trouble or murmurings, or as little as possible.

Thus we tend to become a country of lotus-eaters with stagnation—which brings decay—rife on all sides; first, at the actual consuming centres as those round London, and, through that, with the big import markets like Mincing Lane, for raw materials.

Meanwhile this state of stagnation is seriously checking the demand for manufactured goods, and through that for raw materials; this is causing our markets to be dull and prices, whatever they have been, to fall below a remunerative level, where they will remain so long as the state of dry-rot exists. Those who have money to spend do not want to buy; why should they? They know that, in comparison with the first cost, they are being overcharged, first by the shops, and secondly by the local rates and taxes, the higher postal, telephone and transport rates, all of which is passed on via the retailer, to be carried by them. Thus wise folks bide their time and dispense with luxuries, hoping that this incredibly scandalous state of affairs will pass. The elders go without and the young folks do the same, and to get married and start

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raising a family certainly is a luxury, so, like furs and silken clothes, it must wait, and thus we are—as we are, and all who trouble to think, realize what this means to-day, and how much more serious it will become before long.

“Until we are able to afford early marriages in this country,” said Sir James Cantlie, who knows the world at large, and who is, incidentally, the editor of our elder brother, *The Journal of Tropical Medicine*, “nothing, not even religion, can preserve morality, and here in England there is an increasing tendency to delay marriage until middle age.” This means a lower birth-rate and a lower level of virility, and the wish and will to win among those who do come.

We claim that local lethargy and inefficiency is one of the causes that encourages this, if it is not, in the aggregate, the main cause in many cases. Therefore, so far as we can judge, by the unsatisfactory and unpleasant conditions with which we are surrounded, when foolish enough to try and work at home (and with rents in London at 12s. to 20s. per square foot, many are doing or will have to do so), the greatest checks to prosperity and trade improvement are those who are mishandling local affairs, so that others who would work cannot do so to full advantage, and those who will not work at a commercial rate of pay are being pampered instead of punished.

If this view of the situation is not exaggerated, the sooner that those in H.M. Government who are in charge of local affairs realize what is going on and can find time to put us in order, the better for our colonies, especially those within the tropical zone.

In our leading article already referred to we try to sweep clean in front of our own door, or at least we point to where the broom, a good, new, stiff one, is needed. If everyone does the same, perhaps lotus-eating will go out of fashion, and a general clean-up all round will result.” Then, as Delysia used to sing “You’ll be surprised,” we feel sure, to see how first the retail trade, and through that the orders for wholesale firms passing on to the importers of raw materials, will improve and increase on all sides during 1922. Our New Year’s wish to all readers is that this may prove to be the case.

Economic Zoology.—No. 4.

OUR MOTTO: “UTILIZATION NOT EXTERMINATION.”

Egret-breeding in Egypt a Great Success.

Now that saner opinions prevail in the House of Commons as to the best methods of really safeguarding bird-life in the tropics and sub-tropics, those who have already started *garceros* or osprey-farms, and especially those who wish to do so, should take note of the rapidity with which the birds increase, as we have always maintained they would do, when properly looked after. How often have those whose blind prejudice against the utilization of bird-plumage for trade purposes repeated parrot-like such phrases as “Impossible,” “Untrue,” “Can’t be done,” and so on, when a well-known French firm offered a substantial prize for the first osprey-farm on French territory.

With such a glorious success in Egypt to stimulate enterprise, we all know fifty and probably a hundred centres where such a success can be repeated, so that from a few captive egrets 5,000 direct descendants can be looked for in eight years, and a colony far exceeding the wildest hopes be attracted from outside to join these 5,000 birds native to the spot.

Quoting from the *Daily Mail* of last May, they tell us, on the authority of the Director of the Egyptian Zoological Service now in London, that from a few captive egrets in the gardens, fifteen young birds were hatched in 1913. And from these, the Director estimates, have sprung 5,000 living descendants. Best of all the fifteen parent birds are still alive, so those who can once secure a supply to start the *garceros* with can feel satisfied that they will get full value for their money.

Then comes a portion of the statement, still apparently on the authority of the Director of the Zoo, which does not seem quite clear to us, so we will quote the *Daily Mail* word for word.

“The one protected colony has grown to 200,000, and the birds have gone back to the old nesting-places from which the plume-hunters exterminated their forebears.”

Now we had always been told that the “trade” had exterminated osprey life in Egypt, as it is claimed—untruthfully—that they have done in a score of other places. Everyone who knows the trade is fully aware that no such thing was ever done; if it had been, some 195,000 ospreys would not have come back to join the 5,000 in Egypt in less than ten years. Since this can be so once given the chance, as this colony has had in Egypt, it is easy to realize how similar colonies can become flourishing concerns in Florida, in Venezuela (they are so already), in China, India, Brazil, &c. We hope to see them so before long, now that our claims for truthfulness have been substantiated by the report of the Director the Egyptian Zoo.

In our book, “Coconuts—the Consols of the East,” we suggest the breeding of jungle-fowl, pheasants, ospreys, &c., on coconut farms, where they would have a widespread, seldom-disturbed area to roam over and any amount of insect life to consume, which is what they like. If, as has been claimed, fifteen ospreys grew into 5,000 and then became a colony of 200,000 birds in eight years, which saved the Egyptian cotton cultivators £2,000,000 in the past season by keeping down the cotton worm, think what the birds could do on similar lines elsewhere if (1) they do not help distribute the pest, or another pest, whilst roaming around and taking their meals, (2) if the rats, as on coconut estates, do not eat their eggs and so prevent that splendid increase in the numbers hatched out which is now recorded from Egypt.

STARTING with the January issue, we shall publish the first of some half-dozen articles on “The Breeding of Pheasants, &c., for Food, Feathers, and Insect Destruction,” from the pen of Mr. Frank Finn, B.A., F.Z.S., our leading practical authority on the economic side of bird-life in the tropics and elsewhere, and who has paid special attention to the cross-breeding of birds in order to try and secure new tints and, if possible, brighter-coloured plumage for the bird-

millinery trade. Armed with introductions from this authority to friends in Paris, we visited the Jardin d'Acclimatation in 1912 on purpose to study the various kinds of pheasants they had there.

A classical scholar of Oxford, and past editor of leading papers dealing with bird life, especially in India, Mr. Finn has, for years past, ever since 1892, we believe, closely studied his subject when travelling in East Africa, or and especially when he was in India, where he became First Assistant Superintendent of the Indian Museum at Calcutta. Here he did much valuable work both alone as well as in collaboration with Mr. Douglas Dewar, I.C.S., a very good friend of the bird, as he knows that without economic value they will soon die out.

It would be interesting to compare Mr. Frank Finn's or Mr. Douglas Dewar's long years of experience in the tropics and the authoritative books that they have published on bird-life over there, with the tropical experience of such men as Mr. H. W. Massingham or of his friend, also a Mr. Dewar, but who seems to be no relation, at least no near relative of Mr. Douglas Dewar in India. We have met Mr. Massingham and his friend at the Lyceum Club, and listened to their, apparently, hearsay arguments, and must own that they did not convince us of having ever been in the tropics, at any rate not for any such period as is necessary to study bird-life properly over there as Mr. Finn and Mr. Douglas Dewar have done; the latter, we believe, is still in India.

If this is so, why has Mr. Massingham been appointed (if report is true) to the Committee which is to say which birds are in need of protection and which are not, when an authority who has lived in the tropics like Mr. Frank Finn, and written books on birds as he has done, is not made use of? What actual tropical experience has any member of this Committee to his name, and how often have they sat to consider the highly technical nature of their task before starting in three months' time, i.e., at the beginning of May, to pass judgment?

Mr. Finn has more knowledge of bird-life in his little finger . . . but never mind, we are not writing about Mr. Finn's little finger, but to say that, in view of the approach of April 1st, when, we hear, the Plumage Bill of July 1st, 1921, will start to help in the final destruction of bird-life in the tropics of all kinds not of economic value, these articles by Mr. Finn will show how pheasants at least may be protected and preserved, if a use can be found for their feathers and flesh, and if they can help to destroy insects on estates without conveying fungoid and other diseases about on their feathers or beaks. On this account we feel that all those who realize what harm the approaching Plumage Bill will do to wild bird-life in the tropics will follow what Mr. Finn has to say very closely.

MESSRS. HOLLINGS AND GUEST, LTD., have appointed Mr. D. Landale Frew of 45, Hope Street, Glasgow, to be their sole representative and agent for Scotland. Mr. Frew will, it is needless to say, be pleased to hear or to see anyone north of the Tweed interested in hydraulic machinery, presses, &c., of which Messrs. Hollings and Guest are well-known makers.

Vegetable Oil Notes.

PRICES.

Compare with last month and note the firmness of the various markets. Since the 17th the tendency has been to move upwards, except for oil which does not seem wanted.

DECEMBER.

COPRA PER TON—SPOT.

		London			Ceylon			Marseilles			Rotterdam*			Hamburg*		
		F.M.S.			F.M.S.			F.M.			F.M.S.			F.M.S.		
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Dec.	17	26	7	6	27	15	...	26	0	...	26	5	0	26	7	6
	14	27	17	6	29	0	...	26	15	...	27	17	6	27	17	6
	10	27	17	6	29	0	...	26	10	...	28	0	0	27	17	6
	7	27	17	6	29	0	...	26	10	...	27	15	0	27	17	6
	3	27	15	0	29	5	...	27	0	...	28	0	0	27	15	0

COCONUT OIL PER TON.

		Spot			Ceylon For shipment			Spot			Cochin For shipment		
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Dec.	17	46	0	...	42	10	...	56	0	...	49	0	...
	14	46	0	...	43	0	...	56	0	...	49	0	...
	10	46	0	...	43	0	...	56	0	...	49	0	...
	7	46	0	...	43	0	...	56	0	...	50	0	...
	3	46	0	...	43	0	...	56	0	...	50	0	...

OTHER OILS PER TON.

		Castor Firsts			Ground-nut Crude†			Palm kernel Crude Hull spot			Cotton seed Crude Egypt			Linseed Spot			Soya Bean Oriental Barls.		
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Dec.	17	55	0	...	45	0	...	40	0	...	37	0	...	27	10	...	36	0	...
	14	55	0	...	45	0	...	40	0	...	37	0	...	28	15	...	36	0	...
	10	55	0	...	45	0	...	40	0	...	38	0	...	29	0	...	35	0	...
	7	55	0	...	48	0	...	40	0	...	35	0	...	29	10	...	35	0	...
	3	55	0	...	48	0	...	40	0	...	35	0	...	29	0	...	35	0	...

SEEDS PER TON.

		Linseed Calcutta			La Plata			Cottonseed			Castor Bombay			Ground Nuts† Hull			Soya Beans Manch. Spot		
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Dec.	17	17	0	...	17	10	...	13	5	...	16	5	...	21	10	...	12	15	...
	14	18	5	...	18	0	...	13	0	...	16	10	...	21	10	...	13	10	...
	10	18	0	...	17	10	...	13	0	...	16	10	...	21	0	...	13	10	...
	7	17	15	...	17	10	...	12	15	...	16	10	...	21	10	...	13	5	...
	3	17	15	...	17	5	...	12	10	...	16	5	...	21	10	...	13	0	...

CAKE.

		Linseed London Made			Cotton Lond. Egypt			Coconut			Ground Nuts‡		
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Dec.	17	14	0	...	9	5	...	11	10	...	N/Q	...	...
	14	14	0	...	9	5	...	11	10	...	21	10	...
	10	14	5	...	9	5	...	11	10	...	21	0	...
	7	14	5	...	9	5	...	12	10	...	21	10	...
	3	14	5	...	9	10	...	12	10	...	N/Q	...	...

* Not Ceylon as before. † English crushed, naked. ‡ Coromandel. § Decorticated. N/Q No Quotation.

MANY people know Dr. Malcolm Watson without knowing Malaya, but to know Malaya without knowing Dr. Watson is inconceivable. What a host of people, official and civil, will therefore buy a copy of the second edition, revised and enlarged, of his work on "The Prevention of Malaria" in the F.M.S. (price 36s. net, John Murray) and closely study the contents, knowing that with the twenty years' experience or more that lie behind every fact stated more useful and reliable information on the subjects discussed is not to be found.

Pusa—its Workers and their Work.



MEMBERS ATTENDING THE SECOND ENTOMOLOGICAL MEETING AT PUSA, IN FEBRUARY, 1917, WHO ARE DOING USEFUL WORK OUT IN INDIA.

Fourth Row (Standing): Messrs. Khare, C. C. Ghosh, B.A., Jhaveri, H. P. Pande, A. Razaq, Harchand Singh, S. N. Lal, Nowroji, Ram Saran.
 Third Row (Standing): Messrs. Shroff, H. L. Dutt, M. M. Lal, G. R. Dutt, Mujtaba, David.
 Second Row (Seated): Messrs. Ramakrishna Ayyar, Andrews, Jas. Mackenna, Bainbrigg Fletcher, Anstead, Robertson Brown, Gupta.
 Front Row (Seated): Messrs. P. C. Sen, Harihar Prasad, Ratiram, D. P. Singh, Ojha.

Unfortunately we have not a similar group of the 1919 meeting, but many of the above names reappear in the list below. We regret that Mr. C. S. Misra is not among them.

We have received, and beg to acknowledge with thanks, the following *Bulletins* (No. 96, and Nos. 100-113, 115-117) from the Agricultural Research Institute, Pusa, dealing with current subjects. It will be noticed that the majority are reprints from the report of the *Proceedings* of the Third Entomological Meeting, held at Pusa in February, 1919. The second meeting took place—at Pusa—in February, 1917, when most of those attending were photographed in the above group.

Bulletin 96.—“A Summary of the Experiments on Rice in Bihar and Orissa from 1912-1919,” by G. C. Sherrard, B.A., Deputy Director of Agriculture, Patna Circle, Bihar and Orissa. P. 64. Price As. 10.

Bulletin 100.—“Annotated List of Indian Crop-pests,” by T. Bainbrigg Fletcher, R.N., F.L.S., &c. Illustrated. Pp. 246. Price Rs. 1—8 As.

Bulletin 101.—“Some Insects recently noted as Injurious in Southern India,” by T. V. Ramakrishna Ayyar, B.A., &c. Illustrated, and with coloured plates. Reprinted from the *Proceedings* of the Third Entomological Meeting, where it filled pp. 314-327. Price As. 8.

Bulletin 102. “Borers in Sugar-cane, Rice, &c.,” by T. Bainbrigg Fletcher and C. C. Ghosh, B.A. Illustrated, and with coloured plates, also reprinted from above *Proceedings*—say pp. 354-417. Price R. 1.

Bulletin 103.—“Some Indian Economic Aleyrodæ,” by C. S. Misra (a reprint, pp. 418-433, of above *Proceedings*). Illustrated, and with coloured plates. Price As. 8.

Bulletin 104.—“The Rice Leaf-Hoppers,” by C. S. Misra, B.A. With coloured plate, being 433-443 of above *Proceedings*. Price As. 6.

Bulletin 105.—“Cotton Boll-worms in India,” by Bainbrigg Fletcher and Misra. Being pp. 443-470 of above. Illustrated. Price As. 8.

Bulletin 106.—“The Pink Boll-worm in Egypt,” by Dr. Gough, Ministry of Agriculture, Egypt. Being pp. 472-532 of above *Proceedings*. With charts, &c. Price R. 1.

Bulletin 107. “Experiments in Egypt on the Survival of the Pink Boll-worms (resting stage larvæ) in Ripe-damaged Cotton Bolls buried at different Depths,” by F. C. Willcocks, Entomologist to the Sultanic Agricultural Society. Being pp. 532-546 out of the above *Proceedings*. Price As. 5.

Bulletin 108.—“Some Pests on Cotton in North Bihar,” by C. S. Misra, B.A. Being pp. 548-561 out of above *Proceedings*. Illustrated. Price As. 6.

Bulletin 109.—“Tukra Disease of Mulberry,” by C. S. Misra, B.A. Being pp. 610-618 from above *Proceedings*. Illustrated. Price As. 4.

Bulletin 110.—“The Preservation of Wood against Termites,” by T. Bainbrigg Fletcher and C. C.

Ghosh. Say pp. 705-711 out of above *Proceedings*. Price As. 3.

Bulletin 111.—“Stored Grain Pests” (a most interesting *Bulletin*, showing the value of sand as a covering for stored foodstuffs), by T. Bainbrigge Fletcher and C. C. Ghosh. Many illustrations and a number of coloured plates, forming pp. 712-758 of the *Proceedings*. Price As. 14.

Bulletin 112.—“Notes on Rearing Insects (for investigation) in Hot Climates,” by T. Bainbrigge Fletcher and C. C. Ghosh. Illustrated. Being pp. 875-892 of the *Proceedings*. Price As. 7.

Bulletin 113.—“Hints on Collecting and Preserving Insects,” by T. Bainbrigge Fletcher. Freely illustrated. Being pp. 936-974 of the *Proceedings*. Price As. 10.

Bulletin 115.—“Notes on Plant Imports into India (Restrictions, Fumigation, &c.),” by T. Bainbrigge Fletcher. Pp. 1052-1069 of the *Proceedings*. Price As. 7.

Bulletin 116.—“A Survey of the Indian Poppy-growing Districts for Morphine Content of the Opium produced (probably undertaken in relation to war requirements),” by Dr. H. E. Annett, Hari Das Sen, and Har Dayal Singh. P. 9. Price As. 2.

Bulletin 117.—“The Saving of Irrigation Water in Wheat-growing,” by Albert and Gabrielle Howard. Illustrated. Pp. 22. Price As. 4.

Drying Bananas in St. Lucia, B.W.I.

THE report of the Agricultural Department of St. Lucia, just to hand, has an interesting account of experimental work carried on in that island under the charge of Mr. Archibald Brooks, F.L.S., as Chief of the Department, in connection with the drying of bananas. The pleasing fact that the present price for the fresh fruit rendered such work unremunerative does not detract from the importance of being able to carry on such an industry to best advantage when a slump comes in prices for the fresh fruit either on account of over-production, difficulty of shipment, or inability to compete against other producing centres.

HOW THE BANANAS WERE DRIED.

Ripe bananas were peeled and gently heated in the “Chula”* dryer at a temperature of about 150° F. for sixty-four hours, i.e., until they reached a firm consistency and could be rolled round the fingers without breaking or sticking. Free ventilation was provided throughout the drying to prevent cooking. A second sample was sun-dried and took five days, against the sixty-four hours in the “Chula” dryer. The latter, however, came out too dark in colour, as the value depends on the product being pale. Both with the sun-dried and mechanically dried samples, however, trouble arose over the use of wire netting. It marked the fruit for one thing, and increased the darkness of the fruit where it came into contact with the wire. Probably in future experiments wooden or

other appliances can be used, certainly something not made of metal.

THE VALUE OF DRIED FRUIT.

The flavour and quality of the machine-dried bananas was pronounced by experts in London to be quite satisfactory, and therefore once they can be turned out the same pale colour as the sun-dried fruit, the machine-dried article, being turned out much more quickly, would lessen the risk of loss when large accumulations of fresh fruit come to hand, especially in wet weather with moisture-laden atmospheres. Of course each way has its advantages and, when the weather permits, if both be used it will expedite matters and save money.

Before the war, sun-dried bananas sold at 3½d. per lb. wholesale in the United Kingdom. In July, 1919, they were worth 6d., when exceptionally attractive fruit (not from St. Lucia), being light in colour, sold up to 10d. per lb. The lighter the colour, the higher the value, provided the drying and packing are equal. The Imperial Institute in London, under the direction of Professor Wyndham Dunstan, carried out the investigations on this side to ascertain quality, value, &c., from the buyer's point of view.

HOW TO PACK DRIED BANANAS.

It is not advisable, we are told, to pack dried bananas in ordinary paper, as it adheres to the fruits; “biscuit,” or some form of grease-proof paper, would be more suitable. It may be mentioned, at the same time, that dried bananas usually arrive on the United Kingdom market in wooden cases each containing half-cwt. of bananas packed in layers without any wrapping material. Where Venesta or Luralda cases are available, we should imagine such packages to be best. The makers of both these packages should also be approached for advice as to what paper or other covering would be best to use, the question of cost being taken into consideration.

COST OF PRODUCTION.

In these trials, reports Mr. Brooks, 30 lb. of ripe bananas were used. As the skins, when removed, weighed 7½ lb., this meant 22½ lb. net of fresh fruit ready for treatment. This scaled 6½ lb. only when dried. On this occasion, early in 1919 (although particulars have only now come to hand) the bananas cost 1d. per lb. in St. Lucia, or 2s. 6d. for the parcel to be dried. If the dried product could be relied upon to sell at 6d. per lb. on the spot, it would even then only just pay; to sell therefore in London at 6d. or 7d. per lb. (against 3½ per lb. pre-war) would mean no cost for the fruit and economy all along the line for drying, packing, freight, &c. Actual growers, therefore, could alone undertake to prepare and ship dried bananas, and then only when the fruit otherwise would be a loss.

COULD THE WHOLESALE PRICE BE RAISED AT CONSUMING CENTRES?

We cannot see, however, why dried bananas should not sell quite as well as dried apple rings, which would probably cost more to prepare, as they have to be peeled, cored, &c., although it is true that that need

* If necessary to do so, we would remind our readers that our old friends the Tyneside Foundry and Engineering Co., Ltd., of Newcastle-on-Tyne, are the makers of this appliance.

not entitle them to realize a better price retail. It should be possible to make many pleasant, novel and nourishing dishes for children and adults with dried bananas, only they must become known. They must be on sale everywhere, whereas one has never seen them in the shops. When the public realize their value, it is more than probable that they will sell as high as apple-rings whilst costing less to produce in large quantities. We still hope to hear of dried bananas being on sale as freely as desiccated coconut, apple-rings or dried prunes or apricots. All such things realize higher prices in the winter or early spring, when fruit is less plentiful and consequently dearer, but even when the full season is on bananas, at a price, should be saleable in order to "ring the changes" in the daily diet.

To become popular, however, great attention must be given to the colour and appearance of the meal or fruit, as otherwise by the time it reaches the actual consumer it has become dark and almost blackish in appearance and looks far from appetizing.

BANANA FLOUR.

We also have some data on banana flour. The bananas themselves are more difficult to dry owing to the presence of sugar in the ripe fruit, whereas the green bananas used for flour are mostly starch. These cut in *thin slices* dry in about six hours in the sun.

Perhaps the following notes may be of interest:

Fresh bananas contain 70 per cent. moisture.

Skins average 20 per cent. by weight of whole fruit.

720 bananas make 1 cwt. of flour.

The peel can be loosened on green bananas by immersing them in hot water (170-180° F.) for four or five minutes.

Knives or cutters used for cutting up fruit before drying must be of aluminium or wood. Iron or steel forms black colour (in presence of moisture), and this must be avoided.

In drying ripe bananas, the trays of the Chula Dryer should have slender canes, either whole or split, laid in parallel lines about 1½ in. apart on the expanded metal bottom of the trays. Each cane can be tied in one or two places to the expanded metal bottom to keep them in place. The arrangement will keep whole bananas from contact with the iron. For sliced or "chip" bananas a sheet of plaited cane strips, like that used for cane-bottomed chair-seats, should be fastened to each tray. A few strips of wood or cane about ½ in. thick laid on the expanded metal would serve to separate the plaited cane from the iron.

Apart from any chemical action of the iron on the fruit, more heat is transmitted to the fruit on the points of contact with the metal than is transmitted by the hot air and this is apt to start cooking. For this reason we think wood or cane to be preferable to, say, an aluminium mesh on the trays.

The Tyneside Engineering Co., Ltd., who agree with our statements, add a note saying that they have not done much as yet with machines for drying bananas, but if any interest is shown in our remarks they will be pleased to work with those interested in the matter.

Tractor Cultivation on Coconut, Cacao, and other Estates.

READING of the satisfactory progress now acknowledged to be possible on coconut estates where ploughing, and especially power, i.e., tractor ploughing, has been tried, and having recently heard of the success achieved among the coconut palms in Ceylon when ploughing between them had been resorted to, we attended with increased pleasure a somewhat important ploughing demonstration held in Suffolk on September 26th. We were pleased to do so, being anxious to study the latest thing in ploughs and ploughing on this side, for we consider, now that the prejudice against ploughing between coconuts has been pushed aside, a fair chance is offered to those who believe in ploughing between the trees to prove that it will do no harm and is likely to do some good to cultivate the soil, not only between coconuts, but between cacao trees as well. If some of the surface feeding roots are damaged, and even killed, it need not harm the tree itself, but, on the contrary, by sending the majority of the roots downwards, such cultivation would benefit the cacao for the usual reasons, and also and especially because the deeper-rooted trees stand drought better, and so often continue to yield crops whilst others are mainly occupied in keeping alive.

Besides the ordinary benefits, therefore, that one can look for if such cultivation, which is at present missing, can be brought into general use on estates, we feel that everything that tends to keep the moisture in the sub-soil by breaking the capillary attraction, thereby reducing evaporation and, at the same time, forming a dust mulch, will help to tide over those dry spells that all centres are liable to suffer from at times and thus help to equalize and generally to increase the crops; and, as it would be with cacao, so we anticipate it would be with coconuts and other crops.

We only regret that the report in the *Tropical Agriculturist* for July of the tractor trials on coconut estates in Ceylon conveys no idea as to what ultimate benefits can be looked for from the attention thus given to the soil—an attention which Mr. A. W. Beven, best of all authorities on such matters, quite recently told us in his article in the *Times of Ceylon* was altogether lacking in 1881. These notes (of Mr. Beven's) in comparing 1881 with 1921, just cover the era of our experience in such matters, and we can confirm from our knowledge of the West Indies and of the unwillingness to cultivate and manure the soil between the trees over there, all that Mr. Beven now tells us of Ceylon. You can never get from, nor give to your estate, the utmost possible benefit if you do not cultivate and manure the soil, watching at the same time that sufficient water is there, neither too much nor too little. After that, look out for the wind, and, if necessary, supply a wind brake—then you can go ahead.

Taking the train to Ipswich, we motored to "Dorkin's Field" near Little Roundwood, the property of Major Norman Everett, through whose kind permission the trials were made possible. The programme roughly drawn up started with a demon-

stration of the new "Homestead" thrasher* driven by a British-Wallis tractor. This we watched closely, for although it was wheat that was being thrashed, similar and as good work can be done with the same machine with rice, millet, &c., if not by this actual machine, then by the sister one, which bears the not inappropriate name of the Mosquito Thrasher.

We next saw the tractor plough at work, viz., the British-Wallis tractor attached to a Ransome's New Self-Lift, three-furrow tractor plough (known as the R.S.L.M.-Y.L.), whilst trailing behind came a "Dauntless" cultivator. In spite of the heavy rain we had been having after the long drought, we, in common with a long line of farmers and farming experts (who stretched right across the field on each side of the furrows), noticed that the tractor behaved well throughout. We do not remember noticing it in disgrace once, and it had made many furrows by the time that our two-hour inspection came to an end. The earth was somewhat moister than we expected to find it, but it still left the ploughshare evenly and easily, turning off from it in a most exemplary manner all along the line.

Following that, the same tractor could have been taken from the thrasher to draw the sub-soiler, but as this would have stopped the thrashing, which was not the wish of those present, another tractor of the same make was used, and was soon at work with Messrs. Ransome's New sub-soiler R.S.T.-T.C.P., that certainly has much to say for itself. With a strong tine iron astern, movable at will and capable of being dropped at least 6 in. lower in the earth than the plough itself, this improved implement, it is claimed, gives the maximum of cultivation with the minimum of haulage, and therefore of cost. The sub-soiler certainly enables the machine to thoroughly disturb and turn about the sub-soil with much less strain, and hence less h.p. than if ploughing to that depth (if you desire to do so, which is not always the case), whilst the trench made seemed to give general satisfaction. We would like to see some such plough and sub-soiler at work on a good many sugar estates, which we believe in their present state are suffering through merely being tickled with a hoe over a long series of years.

Lovers of horseflesh are apt to give more attention to the animals drawing the ploughs in Suffolk than those who wish to sell the implement would appreciate if they were aware of the fact. It was a perfect day to be out of doors, and if the field lay flat with no hill rising in the centre, in the middle of which Lucy Kemp-Welsh, or in the older days, Rosa Bonheur, was so fond of placing the horses so as to throw them up clear against the sky as their background, the trio that moved majestically up and down the field as if no plough was behind them, needed no background to bring out their good points, especially the centre horse, a real beauty in every way.

Yet here again was a sub-soiler, for the animals were attached to a Y.L. horse plough with a sub-soiling tine, and they drew it with ease; yet Suffolk horses are slight in the leg, no feathers and huge feet like the Clydesdale; for all that they have the strength.

The height of their withers and the arch of the neck plainly show where the strength lay if needed. These animals did their work well. We again noted the clean cut of the share and the even, easy turnover of the top soil, whilst the sub-soiling tine went through without a hitch. It was a very interesting demonstration.

All this time the thrashing had continued, and the tractor over in that portion of the field remained busily at work. It did not take long, however, to unhitch the tractor from the sub-soiler and attach it to something that was quite new to us, viz., Messrs. Ransome's first-prize stubble-breaker. As we inspected this machine we wondered how cotton planters would take to it, if any of them know of its existence. If they do not, we would strongly recommend them to make its acquaintance as soon as possible. It consists of a trio of strong arrow-headed cutters that glide in below the surface of the soil for one, two, or three inches deep, as required, whilst attached to each is a cylinder-shaped funnel, increasing in size like a gramophone horn, but flattened on the side that touches the ground; this, like the mould board of the plough, throws off the earth, weeds, stubble, &c., as the arrow-headed, cutting points separates them from the soil below, a most ingenious appliance that seems to do its work very well. Placed three in a row, or rather, with the centre one slightly in front of the others, four tracts of this cultivator soon left a wide band across the field, and gave us the idea of offering an excellent implement to clear the soil of weeds, of supplying a dust mulch, and also and especially of providing an easy method for removing the cotton plants after the crop had been gathered from them and by leaving the plants and weeds on the field to dry, render it easy to collect them into heaps and burn them. This, we feel sure, with cotton, is the only way to keep pests at a distance. If you leave your plants standing until the following season, grubs, &c., get into the soil, and are almost certain to give you trouble when the next crop comes along.

In the Ceylon trials, the Cletrac tractor of Cleveland, O., U.S.A., was awarded the gold medal. This is the same machine that works cacao lands in Ecuador (see the *Boletin de la Asociacion de Agricultores del Ecuador* for May, which includes an illustrated article on the subject). Messrs. Ransome's ploughs and cultivators are frequently used with this tractor, as well as with the British-Wallis which they make themselves.

The ice having thus been broken, in Ceylon among coconuts and in Ecuador on the cacao lands, we do hope that those interested in these crops will do some experimental work on their own estates. Tractors need not be purchased at once, for the ploughs, after they have proved satisfactory with animals, horses, mules, caraboes, &c., can be easily adapted for use as tractors later on, and so put the estate-owner to no expense until he is satisfied that cultivation between his crops is, first of all, a distinct benefit instead of harmful; and secondly, that, being beneficial, tractors are or are not cheaper and better on the whole than animals to secure those benefits. Cotton planters in Egypt (see next page) should certainly be interested.

* Using the now popular spelling instead of the more correct "threshing."



Tropical Life "Friend."—No. 198.

H. MARTIN LEAKE, M.A., Sc.D., F.L.S.

Director of Agriculture of the United Provinces, India, and formerly Economic Botanist (Government of India), and Principal, Agricultural College, Cawnpore.

OUR first real introduction to "Our Friend" this month was when we first heard of his work in connection with Egyptian cotton, which arose over his being lent to the Egyptian Government to advise them with regard to their cotton industry. His report, which we found in the *Agricultural Journal* of Pusa, but which has also been issued by the Government press at Cairo in 1920 under the title of "Report on the Maintenance and Improvement of the Quality of Egyptian Cotton and the Increase of its Yield," is one of the best we have encountered not only in connection with Egypt, but for cotton planting and planters generally. On his return to India Dr. Leake became Director of Agriculture to the U.P., and was appointed a member of their Legislative Council. He still occupies these positions we believe.

Originally "Our Friend" worked on purely botanical lines, concentrating his attention especially on cotton with wheat as a subsidiary study. On the outbreak of war, the question of the supply of morphine became important, and so investigations of the poppy plant were added to the other work. In this Dr. Leake was associated with Dr. H. E. Annett, who is now investigating the chemical aspect.

The development of the work in connection with cotton brought Dr. Leake face to face with the real crux of the question of development of Indian Agriculture generally—the economic aspect.

The same point was driven home to him when he took over the college which at that time was teaching little but the details of practical agriculture, and gave the students no indication of the economic aspect. It was mainly attracting the small cultivator who could not possibly repay the cost of his education to the community at large, even indirectly. Noticing this, Dr. Leake's first efforts were directed towards attracting the larger landholder, so as to give him and his sons an education which would—above all—enable him to realize his position in the economic machine and his importance, in the aggregate, to the community at large. The idea of the scheme adopted to help bring this about was subsequently incorporated in an article on Agricultural Education and published in the *Agricultural Journal* of India, which we have before us. If the economic aspect came to the front in connection with the work on cotton, the physical aspect appeared somewhat aggressively in connection with training the students at the college. "The absence of the necessary physical power in the students of the Loni School," Dr. Leake reported, "was one of the points that struck me most forcibly in the visit I was privileged to make to that school. To ensure success, the oldest pupils must attain a physical development enabling them to do the more arduous field labour. This would seem to indicate that the greatest efficiency will be developed in those schools where the age limit is relatively high, and hence that such work is best adapted to schools of the secondary class, where the scholars tend to be older and more developed."

Those interested in tropical agricultural colleges generally will no doubt take note of this point, and also of what Dr. Leake has to say in his article on "The Organization of Agricultural Research in India." "If my argument is sound," he claims, "it would appear that the surest progress lies in the direction of evolution from the present systems, and not in any scheme of a cataclysmic nature. Sound evolution, moreover, requires a clear appreciation of what it is essential to provide and what to avoid."

In the book that "Our Friend" caused to be published the other day on "The Bases of Agricultural Practice and Economics in the U.P." (W. Heffer and Sons, Ltd., Cambridge, 15s. net), Mr. J. Mackenna, C.I.E., who at that time was Agricultural Adviser to the Government of India, wrote in his Introduction that "There is an extraordinary tendency in India to get into watertight compartments (India is not by any means alone in this peculiarity, Ed., T.L.), and in nothing is such a policy more disastrous than in the teaching of agriculture. To vitalize and energize the teaching of this profession, one must show how it fits in with the ordinary economic system, and it is only as we can show its bearing on life as it is that we can expect teaching to be effective."

"Agricultural practice is largely an experience," Dr. Leake points out on p. 3, "to a very great degree unconsciously passed on from father to son, from generation to generation . . . agricultural procedure is an evolved one built up on one's personal experience. The agriculture of to-day is not the agriculture of yesterday, or of to-morrow, and we will only achieve full success if we recognize this fact and make the most of our personal experience."

Business Notices.

1.—The address of TROPICAL LIFE is Messrs. BALE, SONS AND DANIELSSON, Ltd., 83-91, Great Titchfield Street, London, W.

2.—All literary communications should be addressed to the Editor, and accompanied by the necessary stamps for their return if not accepted.

3.—All business communications and payments, either for subscriptions or advertisements, should be sent to the Publishers of TROPICAL LIFE. Cheques to be crossed The Union of London and Smiths Bank, Ltd.

4.—The Subscription, which is Twenty Shillings per annum, may commence at any time, and is payable in advance. Life Subscription, £10.

5.—The Advertisement Department is at 5, Great Tower Street, E.C., where all inquiries respecting advertisements, charges, &c., should be addressed c/o the Manager of the Department. At the same time will advertisers kindly note that all copy and blocks for advertisements must be sent to 5, Great Tower Street, E.C., before the thirteenth of each month, failing which, insertion of same in current month cannot be guaranteed.

6.—The Publishers reserve the right of refusing any advertisement, or the matter or "copy" sent in for any advertisement. They would also be glad if advertisers would refrain from using the "powerful" or extra heavy type that some adopt at times. Doing so renders the paper unsightly, and is unfair to the other advertisers as well as to ourselves. If all used such type, no one would benefit; to allow some to do so and not others, would be unfair.

7.—Advertisers are only entitled to three changes of matter in the year of twelve issues, unless (1) they send electros for insertion, or (2) are willing to pay for the cost of setting up the advertisement. Owing to present high cost of composition and printing work we cannot depart from this rule.

8.—Changes of address should be promptly notified.

9.—Non-receipt of copies of the Journal should be notified to the Publishers.

10.—The Journal will be issued on or about the twentieth of the month.

The Managing Director and Editor of "Tropical Life" will be pleased to consider the printing and publishing of useful technical works on Tropical Agriculture, Medicine, or other subjects dealing with the development of our Colonies and the Tropics generally, as well as similar books dealing with Russia, Japan and the East, whether the books are to be published in English or other languages.

Tropical Life.

DECEMBER, 1921.

The Trade Slump—and Some of Its Causes.¹

BY THE EDITOR.

REFERRING to recent notices in the press of Father Bernard Vaughan's remarks at Wimbledon on our empty cradles and churches, whilst probably addressed to a well-to-do audience immune from the petty worries about to be enumerated, the much respected Father will surely agree that the cradles, if not the churches, are seldom filled so liberally per family by the well-to-do as by the masses. If the trade of this country is to be maintained, leaving the churches to take care of themselves, we must all see to it that the cradles are not left, generally speaking, so empty. Cradles are different to cots; we do not want to see increased the number of Council-reared children, whose existence merely looks well on paper, like the trees on an estate, good, bad and indifferent, but who, being sickly, and only kept alive by the doctor, make very

poor amends for the large number of healthy, vigorous money-makers of the future that we all want to see in our midst, but which do not come. If you doubt the advantage of children as a national asset, watch the struggle of France with its dwindling population against Germany, whose people threaten very shortly to double the number of our Ally. This country also, therefore, if it wishes to maintain and increase its trade, must see that nothing that tends to restrict the production of healthy children in England is tolerated for this reason. To help in this we shall take up a rather considerable space of our columns this month to enumerate some of the reasons that seem to be discouraging so desirable a state of affairs.

Is not the unwillingness, almost the dread, of so many young couples of having a family due to the following, among other reasons, and not to mere selfishness, as is so often claimed to be the cause:—

(1) Lack of order, and absence of quietness in many streets off the main vehicular traffic roads, which renders it impossible or unnecessarily difficult to secure rest and comfort, whether for adults to work, or children to sleep.

(2) The increasing noise and annoyance of the Salvation Army with its music, once or twice a week in the evenings, and throughout Sundays, that is just the time when normal households wish to be quiet. This all tends to drive us to the cinema, or to anywhere else, so long as we do not remain at home, as Father Vaughan very rightly wants us to do. This going out generates a feeling of unrest, and the need, if not an actual love of, excitement, which helps keep the cradles empty on account of the less money that is left, as well as for other reasons, and checks our spending capacity for tropical products.

(3) Lack of respect for local authority on account of their apparent indifference (judging by the Selhurst-Thornton Heath district, near Croydon, where these notes are being written) to what goes on so long as they the authorities—are not troubled. If you complain you are told to prosecute, as they cannot interfere. Is this teaching discipline, or imposing confidence in and respect for law and order in the minds of the public? Most people avoid the law courts at all costs, even when they have the time and money to make use of them. The possible cradle-fillers I am thinking of have neither. The authorities see to that. High taxation means more work and greater economy, and on all sides if (?) the cost of their living is lower, the Government and the local tax-raiser have made the cost of running a house, a trade, or a business much higher. Surely the latter far exceeds the small drop in the cost of food? In any case, the mother-that-might-be looks round, and seeing the fleecing that is going on, whether 100 per cent. or 200 per cent. above 1914, takes care that if she has to put up with it, "no kiddie of mine" shall do so.

(4) Then begging is illegal, even if actual want exists, but not so to the Salvation Army. Women wearing their uniform have called on me begging as late as 7 p.m., and even 9 p.m. on Sundays. Here is a nuisance, and a very real nuisance, yet the authorities allow it; in any case, as with noises, they do not interfere. What is the result? Round come the sparrows, the human sparrows, that we all have in our midst, looking out for crumbs, and picking up

¹ See also the opening remarks of this issue.

what they can. They know that the "Army" goes begging and is not interfered with, so why should not they? And round the children come as well, singly, in couples, or in larger parties. What respect can anyone have for local authorities who tolerate such a state of affairs and thus encourage begging?

Thus the churches grow more and more empty, because religion has been reduced to the level of a Bank Holiday or a coconut pitch. Apparently I live on or near a good pitch, and suffer accordingly. It does not hurt me, but it has generated and is generating a degree of contempt for Church, State and local authority, that will be as serious later on as it is deplorable now. Who cares? No one, so far as the masses can see, and so the more decent of them still have empty cradles, and the trade of the country continues to stagnate.

(5) And lastly, on the top of this, come the heavy local taxes, to say nothing of the Imperial ones, which perhaps do not appear to the masses as affecting them so closely. You feel that these taxes need not be so heavy, as there is so very little to show for the money spent. In the not-well-off districts many pathways are deplorable; they can rick your ankle in the dry weather, and are pools of water when it rains. The masses are out and about every day, and so are faced with this scandal, which has existed since before the war. You go by tram, and the conductor wants to quarrel with you if you do not pay your fare before going to the top, whether you have gloves, parcels, or umbrella to hinder you getting at your pocket. If a passenger is pitched off whilst fumbling for his money, who will pay the damages, the conductor or the tram company? If the latter, it is only the taxpayer over again, who is already paying the conductor a wage above the level of the spending capacity of the country as a whole. The housewife, or the girl about to be married, sees this, and her respect for anyone in authority drops to zero, if not already there. She feels, perhaps without knowing, that the over-high level of wages paid to all classes of labour in this country is substantially beyond the spending capacity of people like herself, and so everything is cut down to a minimum, and a full cradle is considerably above the minimum, and so has to be cut out.

In face of the above, and of the cost of gas (in Croydon, at any rate, it has gone up to 5s. against 2s. 4d., although other places have reduced their rate, and coal and wages are supposed to be lower), together with the unreasonably high prices of bread, meat, and clothes, the public are losing confidence in everything and everybody, and here lies one of the most genuine causes of that uncertainty and unrest which always check the coming of families. Until this is removed Father Vaughan's wishes for full cradles and respect for discipline will continue to be disappointed.

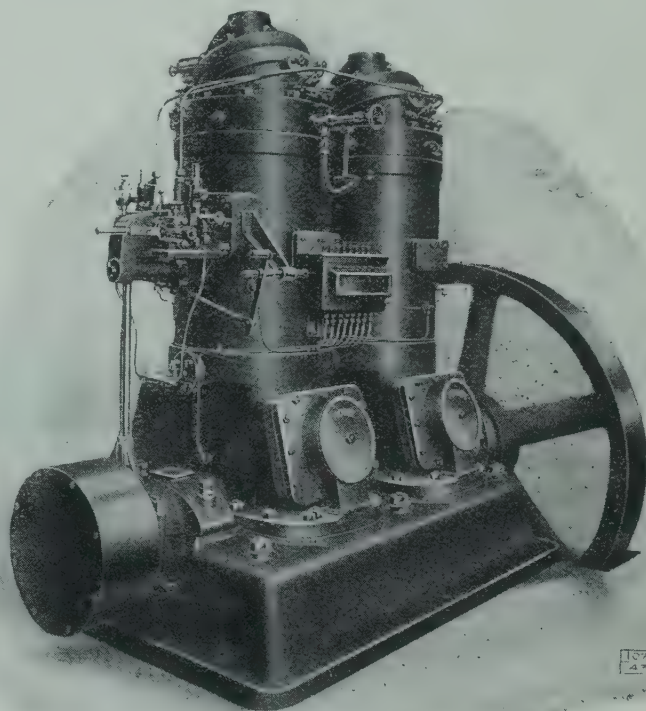
Mr. T. P. O'Connor spoke of life (or it may have been politics) as resembling a tiger-pit, where the tiger that can claw most mercilessly gets to the top. This is exactly what is going on to-day. The plucky youngsters, it is true, get married and dare the tiger's claws, but they are not so silly as to risk the life and limbs of their babies-to-be to such a danger, and so—the cradles remain empty and the demand for goods lessened, and they will continue to be so until all these abuses are remedied. "Urban decay exists every-

where," wrote O. F. Cooke in the *Journal of Heredity* for March-April, 1921. If this is true, the sooner the public realize the fact and apply the remedy the better for themselves and the country and Empire at large. The remedy apparently will not come from the local authorities, so far as my experience goes. Who, therefore, can and will apply it, and will they do so during 1922?

Palm-oil Fuel for Engines.

TO THE EDITOR, "TROPICAL LIFE."

DEAR SIR,—We were interested in looking through your October issue and the article on p. 153 especially interested us, as we have lately carried out experiments for using palm-oil on our semi-Diesel oil engines, and the results obtained were perfectly satisfactory. We enclose a photograph of one of several engines that we make.



The "Robey" Semi-Diesel Crude Oil Engine.

Any kind of crude oil (whale, tar, palm, coconut, ground-nut, &c.) can be used in the above engine, as there are no valves to become clogged up. The engine will, however, give equally good results with refined oil. The absence of complicated mechanism makes the engines especially adapted for installations where only unskilled labour is available. "Our engine has been running fine during a whole year without any trouble," wrote Mr. H. Castellon, Merida, Yucatan (Mexico).

We notice that the engine spoken of in your article uses water injection, and we may say that we abandoned this system of overcoming pre-ignition some four years ago, as we found that the presence of water in the cylinders caused excessive wear.

When carrying out our experiments on palm-oil, we took into consideration the cost of the various grades and, in order to obtain a satisfactory experiment, we secured a sample of oil containing the highest percentage of free fatty acids obtainable, and the analysis

of this oil showed us that this particular grade of oil contained a percentage of 68.25 of free fatty acids.

The consumption of the engine was very little higher than when using crude oil, and we may say also that this engine worked equally as well with petrol without any structural alterations whatsoever, either when using palm oil, crude oil, paraffin, or petrol.

The palm-oil on which we experimented came from West Africa. We have recently received a further sample from the Congo, which is a far better oil than that upon which we carried out our other researches. The consumption of this oil was about 10 per cent. more than with ordinary crude oil and, for averaging purposes, we should say that the consumption per B.H.P. per hour would come out at about three-quarters of a pint.

We shall have pleasure in submitting a copy of our oil-engine catalogues, say Nos. 292 and 303, which illustrate and describe the various types of oil engines we are manufacturing should any of your readers wish to receive them. A note to Lincoln will send them to any part of the world.

Yours faithfully,

ROBEY AND CO., LTD.

Lincoln,

November 9, 1921.

British Enterprise in East Africa.

A READER OF "T.L." IN TRANS-NZOIA.

"IF you received my previous letters, writes an admirer of TROPICAL LIFE in Kenya Colony, "you will see that I was farming *peke-yango* (Swahili for 'on my own'). I never realized, until I started clearing and ploughing land, how hard the so-called Prodigal Sons of the Empire have to work. What a huge piece of land I have got, yet I smiled at it when I arrived. I am still smiling but over only twenty acres that are cleared out of the 2,640 acres that I own. To be exact, I have stumped eighteen acres, broken fifteen more, whilst ten have been ploughed three times and then planted, nine acres with maize and one as a nursery and garden. Five acres have just been broken and are being harrowed, preparatory to a second ploughing. Every acre has some 400 big stumps and about one bad ant-hill. To clear such land ready for the plough takes some 750 working hours; that is to say, 75 boys can clear one acre in one day's work of ten hours. Each hard root and tree stump has to be dug up or cut off at least 18 in. below the surface of the ground so as not to foul and damage the plough. Then the stumps have to be carried off and put into heaps for burning when dry. The holes are filled up or constant jarring occurs, which would harm and probably fracture the plough. The ant-hills have to be cut down and thrown over the surrounding ground, as they are so high that the plough cannot cultivate on them. This means moving many tons of earth. It costs £4 to £5 per acre to clear such land and plough it three times for planting. At the end of twelve months I hope to have sixty acres planted, which is quite a large piece, placed as I am. Sixty acres, well cultivated, can produce 120,000 lb. of maize, valued here in normal times at £300, whilst at present prices

it would be worth £450, so that if the work is heavy the returns are satisfactory. There has been a lot of rainy and cool weather lately; it has been so cool that, after 4 p.m. I put on a coat, and even then walk briskly to keep warm. Yet we are very near the Equator.

HERE IS ANOTHER LETTER.

The contributor of the notes which appeared in our issue for September, 1920, writes from the same district that he had just received that number (it had wandered unsuccessfully after him before he settled down, missed him and was returned to us, to be re-directed to the new address. Thus does TROPICAL LIFE wander, at times, over the earth). He then goes on to say: "Reading this issue, together with the April number for this year, I am amused at my own optimism of ten months ago. What extraordinary changes have taken place since then. Prices have lowered a little out here (this was at the end of June), mainly because people refused to pay such high prices and merchants had to content themselves with less profit. Kenya is essentially a country of producers, and young producers at that. Where I now am—Trans-Nzoia—I do not believe that there is an estate older than nine or ten years, and the large majority have been started by ex-service men since the war.

"All the same, my eleven months' experience only leaves me more optimistic than before; the potentialities of this country, and particularly of this district, are so vast that, if the settlers can hang on long enough, success must come to them. With present prices for flax the grower is done; there are so many to take toll of the crop between producer and spinner. Yet the growers stick to it. I have been on my lands for eighty-two days, of which sixty-nine have been working days. I have employed an average of thirty natives daily, each cost about fivepence per day in wages and 2½d. to feed. There are other expenses connected with one's labour, such as building huts for them, supplying them with cooking pots and providing a doctor when they are sick. If not really ill, they often pretend to be, in order to get out of working. All these and other expenses have to be provided for. One expense not to be sneezed at is the theft of edible crops and anything left about. Thank goodness some of the natives are quite decent men. You can trust them and learn to like such people.

"Those thinking of coming out may like to know that during the afore-mentioned period I have cleared twelve acres. To do this I had to interview between 300 and 400 large roots and dig them out. Then there was one large ant-hill (anything from 6 to 10 ft. high and as much as 30 ft. in diameter at the base). All this is 'per acre,' and has to be removed before the plough can get over it safely. As it is, one acre has been ploughed and harrowed four times, fenced, and made in beds. In these I have planted my coffee seed, with silky oak (*Grevillea robusta*) for shade. I have also several kinds of eucalyptus, a patch of lucerne, a number of banana suckers, and a host of vegetables and fruits.

The eucalyptus (*globulus*, *rostrata*, *saligna* and *cornuta*) are for timber, building poles, &c., whilst there are cypress for wind-breaks. Four acres of land have been ploughed three times and planted with

maize. Five acres have just been broken. At present there are a dozen huts for my natives; a wattle and daub lock-up store for mealies, tools, &c., also a high stockade or 'boma,' where my oxen can sleep, safe from lions, and my own dwelling and office. This house originally was a long grass hut, walls and roof of grass and poles. The walls are now poles and daub, and the thatch on the roof has been considerably improved. The door is of cedar because of the ants and insects, and there are four windows, i.e., openings covered with fine wire netting and curtained inside. More next time *re drains, &c.*"

Rubber and Cotton Notes.

THE TANNIN CONTENT OF HEVEA.

WE have to thank the authorities in Java for sending us Pamphlet No. 17 (in Dutch), published by the Besoeki Experiment Station, in which Dr. W. H. Airsz and Dr. J. Schweizer discuss tannin in Pará rubber.

According to the summary (in English) attached to the above, these two authorities found that the tannin of *Hevea brasiliensis* exists as a solution in the cell-sap. Other organic matter is seldom found at the same time in the cells (crystals of calcium oxalate). The tannin is easily dissolved in water, 70 per cent. alcohol or weak acids, but less easily in alkalis and pure alcohol. Treated with formol it gives a precipitate, while gelatine probably has the same effect. Typical tannin reactions may be got with "Lutz" reagent, with calium bichromate, vanillin and hydrochloric acid, ferro-sulphate and alkaloids. Very noticeable is the red colouring with a dilute hydrochloric acid solution of butter yellow. Red colouring furthermore appears in acid and neutral solutions. In an alkaline solution the tannin is quickly oxidized to phlobaphene-like matter. All tissues (with the exception of the perisperm) and many of their composing elements may contain tannin, the quantity of which depends on the age and position of the cells. The tannin cells are particularly abundant in the bark. They are principally situated on both sides of the latex vessels and accompany these often in uninterrupted layers. Notable is the occurrence of tannin in stone cells, sometimes of the normal bark, but more often of the regenerated bark and young part of the plant.

Especially remarkable is the strong accumulation of tannin in the regenerated bark and in the underlying woody parts, in callus tissue, in primordia of buds, in the neighbourhood of the branchings of roots and shoots and at the base of leafstalks. In any tissue an accumulation of tannin generally corresponds to an increased metabolism.

PRICES AND STOCKS.

Writing on December 1st, Messrs. Lloyd, Matheson and Carritt reported that the firm undertone at the close of November had developed into quite a strong market with higher prices. Mid-December found a moderate amount of business doing with prices about the same. The demand in evidence during the previous week for lower grades remained good, and there was a downward move in stocks. Latest news from Singapore quoted 38 cts. for Standard crêpe and

39 cts. for sheet (equal to 1s. 0½d. and 1s. 0½d. respectively in London), as against the same rates for the previous week's prices. Quotations in London included:—

Spot quotations—	1921 Dec. 15th.		1921 8th.		1921 1st.		1920 16th.	
	s.	d.	s.	d.	s.	d.	s.	d.
Smoked sheet (F.A.Q.)	...	0 11½	...	0 11½	...	0 11½	...	0 10½
Crêpe (standard quality)	...	0 11½	...	0 11½	...	0 11½	...	0 11½
Pará	...	1 2½	...	1 2½	...	1 2½	...	1 1½

Forward positions—	Smoked Sheet		Crêpe	
	s.	d.	s.	d.
1921 December	...	0 11½	...	0 11½
1922 January	...	0 11½	...	0 11½
„ January—March	...	0 11½	...	0 11½
„ April—June	...	1 0½	...	1 0½

Stocks—		Tons		Tons	
Plantation, London	...	Dec. 10th, 1921, 71,051*	...	Dec. 14th, 1920, 47,891	
Pará, Liverpool	...	„ 1st, „ 1,100	...	„ 1st „ 710	
Total		72,151	Total		48,601

* Adjusted owing to stocktaking at Port of London Authority.

The Coco-de-Mer in the Seychelles.

WE remember once listening to Sir. W. H. Lever (now Lord Leverhulme) and Mr. W. E. Davidson (now Sir W. E. Davidson), at that time Governor of the Seychelles Islands, discussing the Coco-de-Mer and its slow rate of growth as well as the time the nuts take to come to maturity. Practically these islands are, and seem likely to remain, the only place where this palm will be found in numbers. Even there one hears of no huge multitude and, not being of commercial value, the palm, like the egret (if not used for millinery purposes), will simply die out, as it is no one's business and no one's interest to keep them alive, and the palm, if not the bird, takes up a considerable amount of room.

According to *Kew Bulletin*, No. 6 of 1921, pp. 254-255, the present governing powers in the islands are taking steps to preserve the trees. There are some 3,000 of them in one place, and lessees of Crown lands have, or will have, to plant twenty-five nuts every year. To plant, i.e., to leave or to lay nuts on the ground, is one thing, to tend and encourage them to grow is another. One trusts that the Seychelles officials will watch the young palms as well as insist on their being planted. We fancy they will do so. It is reported that the palms are not likely to become extinct.

Trade, Politics and Finance.

OWING to the space taken up by our opening remarks, and also with our leading article on p. 185, showing in detail some of the causes of our slump, and why the public cannot and will not buy more freely, we must cut this article short. We would like to say, however, that, thanks to her workers, Germany continues to go ahead, and, however cleverly the country may evade payments and go bankrupt because the Government will not tax the individuals—why should they be taxed unless compelled, as we are, by *force majeure*—the trade of Germany is going ahead, thanks

to her steady workers. Happy Germany! Always the winner.

Meanwhile, except the stagnation in trade, things in general are not so black as they have been. If the sun of greater happiness has not actually appeared, there are several signs of its wishing to do so. Except that De Valera will persist in playing Puck to Mr. Lloyd George's Oberon and Arthur Griffith's Titania, and so make a mess of things just when we expect them to be straightened out and go smoothly, there seems a fair chance of the Irish question being settled. This goal won, then, let us hope, poor England herself can receive a little attention. Judging from our own experience, she needs it.

The City Editor of the *Observer* calls attention to the success of the 6 per cent. Straits Settlement Loan and to the recovery in some of the Overseas markets. These *plus* a settlement in Ireland would go a long way to regain confidence when all are *faits accomplis*. The news from Washington also is considered more hopeful, which is important to the world's trade generally. May all these glints of a better day, therefore, actually show us the sun itself instead of being shut up again, as has been the case for too long, behind the clouds of doubt and mistrust. Lack of confidence rules everything—high politics, finance, and local affairs. If we can only dethrone her, what a leap forward everyone will take.

Thanks are due to our old friends, the Anglo-Continental Guano Works, Ltd., for their attractive and useful blotter and engagement diary. Their account of recent arrivals of raw Peruvian guano, and the rush to secure supplies, which is outlined in the Preface, is worth studying. Two or three of the leading West Indian sugar houses, starved for supplies for so long, have already swooped down and taken a full share, and those who came after were surprised to see how quickly the first two arrivals disappeared.

Turning now to market news, here again the tendency both for dollars and marks is to follow the best direction for the good of the community. The £ sterling is now worth over \$4 (December 10th), and the mark has appreciated to 800 or less to the £, which is a little better than 1250. Remembering this, we can jot down current rates and compare them with previous months, when the exchanges were so different.

Sugar tends lower, 96 per cent. Cane being quoted at 14s. spot down to 12s. 6d. for delivery in May, and even a little lower, 12s. 4½d. in March. Against this duty-paid Crystallized West Indian stands at 39s. to 41s., and Grocery Muscovado or Syrups at 32s., against 45s. to 46s. for Java and other granulated.

The coffee market, if quiet, seems quite steady. The Brazilian receipts to date amount to 5,968,000 bags against 6,874,000 last year, 3,953,000 in 1919-20, and 4,841,000 bags in 1918-19. Sales at the moment are based on an exchange of 7½d.

Coffees sold include Uganda at 68s., 86s. 6d., 95s. for bold, and 100s. 6d. for peaberry. Kilmanjaro realized 66s. 6d. for low middling up to 102s. 6d. for good middling, 110s. to 116s. 6d. for good to boldish, and 123s. for fine bold. Peaberry, 105s. to 139s. 6d. Good mixed Tanganyika went at 91s. 6d., common boldish 84s. 6d.

Costa Rica sales included middling at 111s. to 127s.,

good middling 154s., bold 138s. to 149s. 6d., fine 158s. to 167s. 6d. Peaberry 124s. 6d. to 171s. 6d. Colombian is worth 60s. to 70s. for ordinary, 75s. to 90s. for good ordinary up to 115s. for fine.

Cotton.—Prices like reports have fluctuated. Both leave all but the regular dealers a little fogged in trying to know how things stand exactly. Finally, fully middling American moved to over 11d., down to 10¼d. in October, 1922. The ginned output to date (November 30th) is put at 7,641,000 bales against practically the same, 7,509,000 last year. Sakel Egyptian stands at 19d.

With fibres, Manila hemp is £37 10s., New Zealand £38. Sisal not quoted.

Shellac is reported quiet at 335s. to 340s., and A.C. Garnet 290s. Palm kernels are quiet at £18 12s. 6d. against £26 10s. a year ago. Copper moves between £66 to £67, and Tin £170 to £171.

Coming to finance, the following is a comparison of the principal points in the returns of the Bank of England on December 10th as compared with a year ago:—

December 10th.	1921	1920
Bank Bullion	£128,433,576	£125,873,511
Reserve of Notes	20,100,825	12,113,230
Private Securities	80,636,460	72,180,015
Notes in Circulation	124,961,865	130,411,055
Rate of Discount	5 per cent.	—
Price of 2½% Consols	48½	44½
Price of Bar Silver	34¾d.	38¾d.

The London Cocoa Market.

BY THE EDITOR.

I HAVE been invited to read a paper before the Spanish Society at 5, Cavendish Square, W.C., on January 17th at 5.15 p.m. on Spanish America and its Industries (cocoa, rubber, fibres, cattle, &c.) Sir Maurice de Bunsen has kindly promised to take the chair. I understand that non-members can attend. The cultivation of choice cocoa will be discussed.

The Board of Trade returns to November 30th show for eleven months out of twelve. Here we can note another increase in the U.K. deliveries for Home Consumption, quite a small one again, but still an increase. The stock is drifting towards 50 per cent. only of last year's, but I am a little surprised to see it returned on so liberal a basis. One wonders where the cocoa is. We know it is not in London or Liverpool, which together had only 232,172 bags (130,197 up at Liverpool and 101,975 in London), against 555,623 bags last year (342,895 + 212,728). Divide 232,172 by 16 (bags to the ton) and you get under 15 tons as the combined stock at these two ports out of the U.K. total of 30,900 tons. Where is the other half? Probably in manufacturers' warehouses, where, not yet having paid the import duty, the cocoa is included in the Board of Trade figures. If this is correct, then the U.K. has only 15,000 tons of cocoa to draw upon, some of which no one wants, and other parcels, being already sold, are not available for purchase. With this facing us, surely it will not be surprising if the present state of stagnation passes off after Christmas. Here are the figures of the actual returns:—

November only.

	Imported Tons	Del'd. H.C. Tons	Exported Tons	Stock Nov. 30th. Tons
1918 ...	2,524	2,147	445	8,850
1919 ...	2,800	5,472	4,650	47,600
1920 ...	1,562	4,638	6,046	52,500
1921 ...	2,924	4,813	3,740	30,900
Incr.	1,362	175	Decr. 2,306	Decr. 21,600

11 months.

	Imported Tons	Del'd H.C. Tons	Exported Tons
1918 ...	31,576	25,154	6,304
1919 ...	109,266	58,089	23,378
1920 ...	100,390	47,060	41,485
1921 ...	53,356	42,774	26,548
Decr.	47,034	4,286	Decr. 14,937

Here, therefore, we have a wonderful reduction in the stock compared with last year, or even recently, month by month, with past stocks in 1921. Everyone believed it would be so, but that does not make it any the less wonderful, especially as we have all along been assured that demand is dead as a door-nail, and that there is nothing doing. Nothing doing, indeed, when the Liverpool stock has dropped to nearly one-third what it was at the end of the June, and London to nearly half. Where has all the cocoa gone? Why has it been removed if no one has been buying?

Stock at	Liverpool Bags	London Bags
End June ...	329,843	191,337
„ July ...	304,870	180,176
„ August ...	266,566	168,901
„ September ...	201,374	151,159
„ October ...	130,197	124,905
„ November ...	—	101,975

Believing that nothing happens without a reason, when the above facts became apparent, I started to ask questions such as:—

(1) Who has been buying the bulk of the cocoa that the diminishing stocks show not only to have been ordered or purchased, but taken into delivery?

(2) If English manufacturers have taken a goodly and even a large proportion both of spot parcels as well as of “cocoa to arrive,” was it to pull down the cost of back “numbers,” including perhaps parcels purchased at top prices against values, which, since June, have been at the other end of the stick; or was it in anticipation of short supplies and a somewhat greedy, because delayed, demand during the approaching somewhat ambiguous period, “after Christmas”?

Being the Christmas number, one may be excused if they spin yarns; yarns that do not lose in value if, as yet, they cannot be proved up to the hilt. It is just this flip-up of uncertainty which gives zest to the tales.

According to Alleaume, the Gold Coast exported 4,500 tons in October, but my official returns, just in, show that 6,800 tons were shipped, against 4,358 tons last year, the ten months' total being 88,638 tons, against 97,779 tons in 1920. As just over 124,000 tons were shipped in 1920, the present output will have to wake up if it does not wish to be left behind. How different this, the actual state of affairs, is to the extraordinary article that recently appeared in the pages of a contemporary, which still spoke of the

astounding export of 200,000 tons from the Coast last year. As the *Confectionery Journal* asked, “When will someone kill and bury for all time this astounding misstatement of fact about the quantity of cocoa shipped from the Gold Coast? If the Gold Coast Government were as interested in the welfare of their cocoa industry as Brazil has proved to be, surely she will publish, or cause to be published, a denial of so large an output having left the Gold Coast in 1920.” Such statements are fair neither to the market to-day with sellers trying to place cocoa, nor will they be to buyers in 1922, when they go to take up contracts on the basis of such exaggerated reports.

If the Gold Coast is behind, as stated above at the end of October, she has only two months to run to catch up with 1920. To do so means that 15,500 tons must be exported both in November and December. If this is done, then 1921 will catch up with the 124,000 tons shipped last year. I do not expect to see these 31,000 tons leave the Gold Coast in the two months, and neither do I expect any heavy shipments between Christmas and June. Most certainly nothing warrants such old women's tales as 200,000 tons shipped in a year. And this is where the Christmas story comes in; whether, eventually, it turns out to be true or not remains to be seen.

Supposing 200,000 bags fair Accras and 50,000 bags of superior Bahia are down on paper as purchased for delivery in February, what do *you*, who read these lines, think will happen when the purchasers go to take delivery? Have these contracts been made on the belief, so prominently announced in June, and repeated since, that the Gold Coast is a 200,000 ton producer, or that Bahia will produce liberally during the remainder of this crop year? If so, will not disappointment, coupled with competitive buying, result, in which case, whatever happens at consuming centres, there should be no dullness and leaden demand, at least in West Africa and Bahia. Perhaps, too, if this Christmas dream turns out to be correct, manufacturers may condescend to buy Grenadas and Jamaicas, which give, as they have always given, such excellent value for the moderate prices asked for them compared with other growths. I, at any rate, expect to see competition rife both in West Africa and on the opposite shore (Bahia) after Christmas. Perhaps the following table may interest, perhaps even help, my readers—manufacturers as well as producers—to see how the land lies with Bahia.

Bahia Movements.

Crop	1921-2		1920-1	
	Receipts	Exports	Receipts	Exports
May ...	13,355	41,200	9,535	15,291
June ...	7,814	14,652	50,371	33,724
July ...	23,083	37,066	75,979	53,656
August ...	48,767	42,726	101,415	101,257
September ...	63,295	42,390	125,869	114,429
October ...	60,600	49,576	142,916	118,683
Totals ...	216,914	227,610	506,085	437,040
Add Nov.-Apr.	183,086 ¹	200,000 ¹	524,690 ²	567,289 ²
Total crop ...	400,000	427,610	1,030,775	1,004,329

¹ Estimated to end of April. ² Actual figures.

If, therefore, as was officially reported, Bahia is only to have 400,000 bags this crop, the above table shows exactly what quantities we can look for from

the estates, or, adding a little more to be drawn from stocks at Bahia, to be exported from there. Now comes the query: If this is all we can look for, how do the contracts made and the cocoa to be delivered on same compare with above estimate for after October? Will there be enough to go round?

During the first half of November, according to Keller of Paris, the receipts at Bahia only amounted to 17,068 bags against 59,405 last year, making the six and a half months' total come to 233,982 against 565,490 bags in 1920, and whilst reading this I learn that Hamburg received over 92,000 tons during the ten months, January-October, and passed on over 81,000 tons (= 8,000 a month) for consumption. At this rate she is equal to America. One wonders if the U.S.A. will be able to shoot ahead before she is left behind. In bags I make out that Hamburg received in the ten months 1,366,000 bags against America's 1,547,000. This is not far behind, and Germany has only three-fifths of America's population.

Here is some news from Ecuador.

Guayaquil Receipts—10 months.

			1921				1920
Jan.-Oct.			Quintales				Quintales
Arriba	...	...	465,887	...	...	...	519,507
Balao	...	...	143,089	...	...	...	103,925
Machala	...	...	47,522	...	...	...	16,330
Total	...	...	656,498	...	...	...	639,762

Here, therefore, we have an increase of 16,736 quintales with two more months to run. In 1917 the total was 816,125 quintales for January-October, but since then the average has been only about 626,000 quintales. Germany still takes the bulk. October's shipments amounted to 43,600 bags, of which 17,675 went to Hamburg, 8,100 to New York, and 2,950 to San Francisco. None left for the U.K.

Meanwhile the A.A.E. (Asociacion de Agricultores Ecuador) is to have another spell of life. Thanks to Mr. J. B. Rorer, who has sent us news on several occasions when no one else seemed to know anything, I can give the following particulars:—

The President (of Ecuador) has signed the decree which extends the life of the Asociacion until 1925. We are glad to see that the new agreement arranges for the upkeep of the Agricultural Experiment Station. This important department has been short of funds; we now hope this will be a thing of the past. Roughly translated, the law says:—

Article 1.—Prorogation until December 31st, 1925. of the export duty on cocoa fixed by the laws of 1912 and 1916—at the old rate of *sucres* 3 on every 100 lb. exported.

Article 2.—Sixty-six per cent. of the proceeds resulting from this duty must be used in paying off the old debts of the Asociacion to the holders of notes to the local banks and to the Mercantile Bank of the Americas; thirty-four per cent. to be used in paying the cost of administration in the "defence" of cocoa, and a proportional part for the upkeep of the Experiment Station. Commenting on this, I (Ed. T.L.) would like to suggest that as the debts of the Asociacion, owing to their not having sold the cocoa at prices equivalent to its high cost price, are in the neighbourhood, it is said, of some \$12,000,000, there is not much time in which to liquidate such a debt, as

1925 only means three complete years from now, and at \$3 per 100 lb. tax, this means 400,000,000 lb. of cocoa to be shipped and the tax paid on it, or at the rate of (400 ÷ by thirty-six months) 11,000,000 lb. per month. The 43,600 bags shipped in October = 3,557,764 kilos, or just over 7,000,000 lb. Can we, therefore, look to a monthly average of 11,000,000 lb. during the coming three years? Surely it ought to have been at least five years, which would mean an average shipment of about 6,500,000 lb. a month.

Article 3.—To control the work of the Asociacion an Interventor (or Director) will be appointed, who will have the right to investigate and interpose in all the operations of the Asociacion, examine the books, &c., and his salary will be paid by that body.

Article 4.—Acting in accordance with the wishes of this official, the Asociacion's staff must be reduced to such a number only as is necessary to carry on the work to be done.

Article 5.—It will be the duty of the Interventor to report to the President and Congress on the progress made by the Asociacion when called upon to do so. As a result of such reports the President can and may order the Asociacion to change their methods if they are not considered to be in accord with the best interests of the country. Should such orders be disobeyed, the President can call upon the Directors of the Asociacion to resign and appoint others to take their place. If this is not possible, the tax will still be collected by the President, and used by him to liquidate the debts of the Asociacion.

Article 6.—The employees as well as the Directors will be held responsible, collectively and individually, for any contravention of the law which they have been appointed to administer.

Article 7.—The Asociacion cannot, under any circumstance, increase the amount of their indebtedness at the time of the passing of this law.

Article 8.—Other laws, &c., contrary to the present one, are hereby repealed.

All of which makes one imagine that those who had the direction of the Asociacion and its affairs in the past did not give complete satisfaction. This is not surprising; it is to be hoped that the new Directors will do better—much better from Ecuador's point of view, or else as in Colombia, there may be political as well as financial and commercial upheavals, as one cannot live on air, Governments especially, in these days.

But let us talk of other things. Havre, like London, has reduced her stock steadily from June to November, say:—

		Paris, Fcs. 57.50 New York, £ = \$3.99		Paris, Fcs. 58.10 New York, £ = \$3.53	
HAVRE, Nov. 30th.	Stock Bags 1921	Value Fcs.	Stock Bags 1920	Value Fcs.	
Pará	4,821	127 to 145	7,095	180 to 193	
Bahia	18,264	128 „ 155	41,353	157 „ 193	
Venezuela	17,814	145 „ 275	25,929	218 „ 296	
Trinidads	17,321	150 „ 155	51,921	195 „ 198	
Grenada & O.W.I.	10	120 „ 143	10	170 „ 188	
San Thomé	20,310	105 „ 145	41,561	147 „ 183	
San Domingo	22,192	112 „ 123	44,320	160 „ 170	
Haiti	24,735	91 „ 113	36,745	130 „ 170	
Accras	13,845	122 „ 125	29,207	156 „ 160	
Guayaquils	11,605	142 „ 160	13,189	235 „ 255	
Others	16,234	—	27,930	—	
Totals	167,151 bags		319,260 bags		

On June 30th they had 270,969 bags on hand; on September 30th this had dropped to 224,878, and now, at the end of November, there are 167,151 bags only as under. During November Havre received 11,906 bags and delivered 31,129.

London, against Havre, had 191,337 bags at the end of June, 151,159 bags on September 30th, and now 105,601 bags on December 10th as under:—

LONDON STOCK, Dec. 10th:—	1921 Bags	1920 Bags	1919 Bags	1918 Pre-war
Trinidads ...	14,742	29,903	27,157	9,586
Grenadas ...	14,583	21,656	15,157	2,905
Other W.I. ...	7,680	13,819	5,201	3,145
British African ...	15,314	12,553	19,335	5,667
Portuguese African ...	763	23	26,102	5,995
Cameroons ...	1,351	1,378	2,492	2,561
Ceylon and Java ...	8,045	19,079	7,437	9,120
Guayaquil ...	23,364	73,499	8,496	20,123
Bahia and Brazil ...	550	1,185	2,581	1,763
Other foreign ...	19,209	37,187	9,845	8,107
Totals ...	105,601	210,282	123,803	68,972

This enables us to make the following table:—

Latest Stocks.	1921 Bags	1920 Bags	1919 Bags
London, December 10th ...	105,601	210,282	123,803
Liverpool, October 31st ...	130,197	342,895	136,977
Havre, November 30th ...	167,151	319,260	252,774
Bordeaux ...	76,429	98,870	103,709
New York, September 31st ...	167,777	367,667	294,340
Lisbon, October 31st ...	29,254	133,447	170,935
Totals...	676,409	1,472,421	1,082,538

On December 3rd the difference in London was more marked between 1921 and 1920, but the week ending December 10th saw nearly 10,000 African and Other Foreign landed, and this sent up the total stock.

The imports into New York are worth noting. Here are details, borrowed from the *Spice Mill* of New York:—

NEW YORK IMPORTS—Jan.-Sept.

	1921 Bags	1920 Bags	1919 Bags
African ...	353,856	524,575	832,651
Bahia ...	329,507	272,038	306,895
Sanchez ...	286,015	247,459	249,621
Trinidads ...	202,450	130,473	123,890
Venezuelan ...	126,487	101,420	58,722
Guayaquil ...	173,185	241,357	228,858
All others ...	82,988	77,580	82,821
Totals ...	1,554,488	1,594,902	1,883,458
12 months ...	—	2,083,619	2,655,402

How much more cocoa, one now wants to know, will America take during the rest of the year? How much did she receive during October and November, growth by growth, compared with above? Then there is Germany, which is running America very close; 1,366,400 bags went into Hamburg alone between January and October, against 1,547,032 into New York. How does the rest of the world compare with these? I say nothing of prices this month, except that no one seems to want fine Grenadas even at 50s. when they are cheap at 60s., and that Accras, after rising to 42s. from 39s., have gone back to 39s. again.

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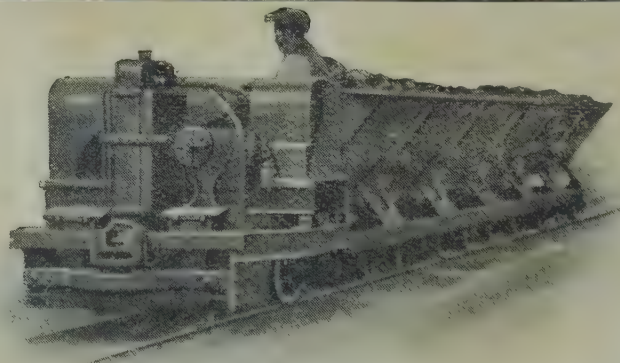


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